

ADAMTS

MAGNETIC PRODUCTS™

- flexible
- assemblies
- ceramic
- rare earth NdFe and SmCo
- alnico



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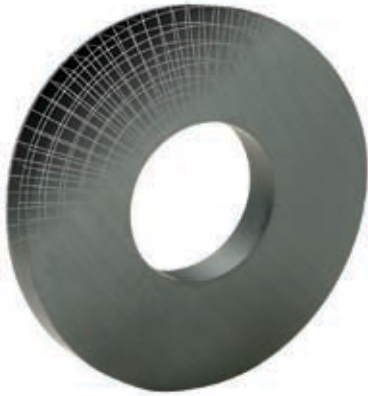
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Engineering Support

Adams provides engineering support for flexible magnets, sintered and bonded magnets, magnet assemblies and devices, ferrite cores, and other magnetic materials by answering customers' technical questions and assisting customers' magnetic products design and development.

We can calculate pull force and flux density for magnet assemblies, create technical drawings, analyze specifications and test data, prepare EMI reports, and assist in developing new magnetic assemblies through a powerful 3D simulation method.

We are also continuously researching materials and methods to enhance quality and increase production at Adams' Illinois, Kentucky and California facilities. With the help of our engineering team, Adams provides custom manufacturing, coating and plating, magnetizing, global sourcing, just in time delivery, and of course, design assistance.

Engineering Software

Adams utilizes engineering software packages – AutoCAD® and AMPERES – to enhance its product design capabilities and better serve its customers, allowing us to have more control of quality and turnaround, including greater flexibility to accommodate customers' input and changes on cast, sintered and bonded magnetic products.

Considered the industry standard for creating two-and three-dimensional drawings, AutoCAD® software propels day-to-day drafting forward with features that increase speed and accuracy, while saving time. Amperes, a three-dimensional magnetostatic field solver from Integrated Engineering Software, simulates and optimizes electromagnetic components and systems before the manufacturing stage. This means significant cost savings, faster to market times and reduced prototype costs.

In addition to drawings, prototyping and designing optimizations, we can more easily provide our customers with reliable calculations for pull or push force, torque, surface and space gauss readings, and maintaining consistency in the uniformity of the magnetic materials.

Magnets and Magnetism

Magnets are key elements found in all kinds of products. From medical equipment and magnetic disk drives, to toys and games, the world would not be the same without magnets.

Our customers range from engineers developing equipment that relies on magnetic materials, to manufacturers who employ magnets for simple decorative reasons. No matter how extensive your requirements or your knowledge of magnets, Adams can provide you with the materials you're looking for and the answers you need.

Magnet Functions

Magnets have several useful functions beyond the most commonly known attraction and repulsion. Magnets effect electrically charged particles and electrical conductors. They also have the ability to transform electrical energy without losing their own energy. These effects can perform useful functions, for example:

- Electrical-to-mechanical effects are vital in the function of motors, loudspeakers, and equipment that requires charged particle deflection.
- Mechanical-to-electrical effects are useful in generators and microphones.
- Mechanical-to-heat effects facilitate eddy current and hysteresis torque devices.
- Mechanical-to-mechanical effects attract or repel objects.
- Other effects of magnets include magneto-resistance and magnetic resonance.

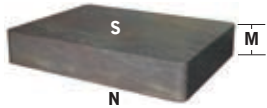
Magnet Types

Adams can help you select the type of magnetic material that best meets your needs because we specialize in a wide range of magnetic products including:

- Flexible magnets – Made of thermoplastic material with a dark brown appearance, flexible magnets can be bent and flexed without affecting their performance. These can be magnetized using several different methods to fit various applications.
- Ceramic magnets – Or hard ferrite magnets are rigid and brittle and provide good magnetic performance as a very economical material. Ceramic can only be cut or ground to size using diamond wheels before it is magnetized. Its natural color is black.
- Rare earth magnets – Neodymium (Neo) and Samarium Cobalt magnets deliver incredible strength in a small package. Rare earth materials can be cut and ground to specifications before magnetization. Their natural color is gray, but they are normally supplied with a coating.
- Alnico magnets – This aluminum-nickel-cobalt alloy is excellent for high temperature use, and is readily available in rods or bars. Close tolerances can be held by grinding to customer specifications. Alnico as cast is gray to dark brown in color, but looks bright metallic when ground.
- Magnetic assemblies – Up to 32 times stronger than individual ceramic magnets, Adams standard assemblies are powerful magnets encased in steel. Magnetizing both the magnet and the metal together creates a strong magnetic circuit that can be rated by their pull strength.

Coating and Plating

Adams offers Polyolephin, PVC, epoxy, nickel, chrome, powder, vinyl and other coating types, also including colors.



CONVENTIONAL
THROUGH THICKNESS



MULTIPLE
POLE



TWO POLES
ON ONE FACE



CONVENTIONAL THROUGH LENGTH



FOUR POLES ON ONE FACE

How We Help You Select Magnetic Material

Adams can help you select the right magnetic material for your projects. At the start of a new magnetic design or order, we ask customers:

1. What is the application for the magnet?
2. What are the magnetic requirements of the design or circuit?
3. What are the physical needs of the material?
4. What minimum and maximum temperatures will the materials be exposed to?
5. What are the cost requirements? What is the ratio of price to performance?

Magnetizing

We build all our own magnetizers to best suit each type of material we work with. We can magnetize most magnets or magnetic assemblies for you. If needed, we'll even build special fixtures to meet your particular magnetization requirements.

Methods of Magnetization

Materials are magnetized in several ways. The images to the left indicate the directions of magnetization that are commonly applied when making magnets.

Methods of magnetization are related to the material type. For specific questions about methods of magnetization, please consult our engineering staff. For instance, while multiple pole magnetization adds to the direct holding force of flexible magnets, it is not feasible for most neodymium and samarium cobalt magnets. And magnetizing alnico can result in a large amount of self-demagnetization unless the part is magnetized in the circuit.

Pole Spacing

While multiple poles spaced closely together can increase holding power, they can reduce the reach of the magnet. Inversely, when fewer poles are present, magnetic reach increases, but on contact, holding power is reduced.



LESS REACH
MORE HOLDING FORCE



MORE REACH
LESS HOLDING FORCE

ADAMS IS YOUR ANSWER TO EVERYTHING MAGNETIC. SO WE'VE OUTLINED A FEW IMPORTANT WORDS AND PHRASES TO HELP YOU GET A BETTER UNDERSTANDING OF THE MAGNETIC FIELD.

Magnetic Terms

COERCIVITY is a measure of the “permanence” of a permanent magnet. It describes the strength of the reverse magnetic field required to demagnetize a magnet after it has been magnetized.

COERCIVE FORCE is the demagnetizing force required to reduce the residual induction of a fully magnetized magnet to zero.

CURIE TEMPERATURE represents the point beyond which magnetic materials lose their magnetism.

ELECTROMAGNETS emit a magnetic field only when an electrical current runs through them.

GAUSS is a unit of magnetic flux density equal to 1 maxwell per square centimeter. Gauss is represented by the symbol B.

HARD MAGNETS are permanent magnets.

INTRINSIC COERCIVE FORCE is a magnetic materials ability to resist demagnetization.

MAGNET is a label that applies to objects made of materials that create a magnetic field.

Magnets have poles, at least one north pole and one south pole.

MAGNETIC FIELD is the region in space where a magnetic force can be detected. The magnetic field strength and direction can be measured.

MAGNETIC FLUX is a concept that attempts to describe the flow of a magnetic field.

MAGNETIC POLES are the points in all magnets where their magnetic strength is concentrated. Those points are called poles. We label them north and south because suspended magnets orient along north-south planes. On different magnets, like poles repel each other, opposite poles attract.

MAGNETISM is the force of attraction or repulsion between materials made of certain elements, such as iron, nickel, cobalt, and their alloys.

MAXIMUM ENERGY PRODUCT is a quality index representing both the saturation magnetization and coercivity of a permanent magnet. The higher the energy product of a magnet, the smaller it needs to be to perform a specific function.

MAXIMUM OPERATING TEMPERATURE is the maximum temperature of exposure that a magnet can forego without significant long-range instability or significant flux losses.

NORTH POLE is the magnetic pole which attracts the geographic North Pole.

RESIDUAL INDUCTION is the magnetic induction corresponding to zero magnetic force in a magnetic material after full magnetization in a closed circuit.

ORIENTATION DIRECTION refers to the preferred direction in which some magnets, called oriented or anisotropic magnets, should be magnetized. The “orientation direction,” also known as an “easy axis” or “axis,” is the direction that achieves its maximum magnetism. Other magnets, called unoriented or isotropic magnets, can be magnetized in any direction.

PERMANENT MAGNETS emit a magnetic field without the need for any external source of power.

RARE EARTH MAGNETS is a term used to refer to a group of magnetic materials whose alloys consist of one or more of the Rare Earth elements. These materials are characterized by exceptionally strong magnetic properties.

GLOSSARY OF SYMBOLS AND TERMS

COMMON MAGNETIC SYMBOLS

Φ	Magnetic flux
B	Magnetic induction (gauss)
H	Magnetic field strength (oersteds)
$B_d H_d$	Energy product (MGOe)
BH_{max}	Maximum energy product (MGOe)
B_r	Residual induction (flux density)
H_c	Coercive force
H_{ci}	Intrinsic coercive force

Materials Chart of Properties

MATERIAL	BHMAX(MGOE)	BR GAUSS	Hc OERSTEDS	Hci OERSTEDS	°C/°F
Standard Flexible	0.65	1,625	1,380	2,400	79/175
High Energy Flexible	1.4	2,480	2,040	3,050	79/175
Flexible Neo	8.0	6,300	4,500	8,500	116/240
Ceramic 1	1.0	2,300	1,860	3,000	399/750
Ceramic 5	3.4	3,950	2,400	2,450	399/750
Ceramic 8	3.5	3,900	2,950	3,050	399/750
Sintered Alnico 2	1.7	7,100	560	N/A	538/1000
Sintered Alnico 5	3.9	10,900	620	N/A	538/1000
Sintered Alnico 8	4.0	7,400	1,500	N/A	538/1000
Cast Alnico 5	5.5	12,800	640	N/A	538/1000
Cast Alnico 5-7	7.5	13,500	740	N/A	538/1000
Cast Alnico 8	5.3	8,200	1,650	N/A	538/1000
Cast Alnico 9	9.0	10,600	1,500	N/A	538/1000
SmCo 18 (1.5)	18.0	8,500	8,000	12,000-20,000	260/500
SmCo 20 (1.5)	20.0	9,000	8,000	12,000-20,000	260/500
SmCo 24 (2.17)	24.0	10,000	8,500	9,500-14,000	349/660
SmCo 26 (2.17)	26.0	10,500	9,200	10,000-14,000	349/660
SmCo 28 (2.17)	28.0	10,800	10,000	10,000-20,000	349/660
SmCo 30 (2.17)	30.0	11,000	9,000-10,000	10,000-16,000	349/660
SmCo 32 (2.17)	32.0	11,200	9,000-10,000	10,000-16,000	349/660

°F = MAXIMUM OPERATING TEMPERATURE

Materials Chart of Properties

MATERIAL	BH _{MAX} (MGOE)	BR GAUSS	H _C OERSTEDS	H _{CI} OERSTEDS	°C/°F
Neodymium 2825	26-29	10,200-10,800	9,600	25,000	180/356
Neodymium 2830	26-29	10,400-10,900	9,800	30,000	200/392
Neodymium 3012	28-31	10,800-11,300	10,000	12,000	80/176
Neodymium 3014	28-31	10,800-11,300	10,000	14,000	100/212
Neodymium 3017	28-31	10,800-11,300	10,000	17,000	120/248
Neodymium 3020	28-31	10,800-11,300	10,100	20,000	150/302
Neodymium 3025	28-31	10,800-11,300	10,200	25,000	180/356
Neodymium 3030	28-31	10,800-11,300	10,200	30,000	200/392
Neodymium 3314	31-33	11,300-11,700	10,500	14,000	100/212
Neodymium 3317	31-34	11,300-11,700	10,500	17,000	120/248
Neodymium 3320	31-34	11,300-11,700	10,600	20,000	150/302
Neodymium 3325	31-34	11,300-11,700	10,700	25,000	180/356
Neodymium 3330	31-34	11,300-11,700	10,500	30,000	200/392
Neodymium 3512	33-36	11,700-12,200	10,900	12,000	80/176
Neodymium 3514	33-36	11,700-12,200	10,900	14,000	100/212
Neodymium 3517	33-36	11,700-12,200	10,900	17,000	120/248
Neodymium 3520	33-36	11,700-12,200	11,000	20,000	150/302
Neodymium 3525	33-36	11,800-12,200	10,800	25,000	180/356
Neodymium 3530	33-36	11,700-12,100	11,000	30,000	200/392
Neodymium 3812	36-39	12,200-12,500	11,300	12,000	80/176
Neodymium 3814	36-39	12,200-12,500	11,300	14,000	100/212
Neodymium 3817	36-39	12,200-12,500	11,300	17,000	120/248
Neodymium 3820	36-39	12,200-12,500	11,400	20,000	150/302
Neodymium 3825	36-39	12,200-12,500	11,300	25,000	180/356
Neodymium 3830	36-39	12,200-12,500	11,300	30,000	200/392
Neodymium 4012	38-41	12,500-12,800	11,400	12,000	80/176
Neodymium 4014	38-41	12,500-12,800	11,600	14,000	100/212
Neodymium 4017	38-41	12,500-12,800	11,600	17,000	120/248
Neodymium 4020	38-41	12,500-12,800	11,800	20,000	150/302
Neodymium 4025	38-41	12,500-12,800	11,300	25,000	180/356
Neodymium 4212	40-43	12,800-13,200	11,500	12,000	80/176
Neodymium 4214	40-43	12,800-13,200	12,000	14,000	100/212
Neodymium 4217	40-43	12,800-13,200	12,000	17,000	120/248
Neodymium 4220	40-43	12,800-13,200	12,400	20,000	150/302
Neodymium 4512	43-46	13,200-13,800	11,600	12,000	80/176
Neodymium 4514	43-46	13,200-13,800	12,500	14,000	100/212
Neodymium 4517	43-47	13,200-13,800	12,000	17,000	120/248
Neodymium 4520	43-46	13,200-13,800	12,600	20,000	150/302
Neodymium 4812	46-49	13,800-14,200	11,600	12,000	80/176
Neodymium 4814	46-49	13,600-14,300	12,900	14,000	100/212
Neodymium 4817	46-49	13,700-14,300	12,500	17,000	120/248
Neodymium 5011	48-51	14,000-14,500	10,000	11,000	60/132
Neodymium 5014	48-51	14,000-14,500	13,000	14,000	100/212
Neodymium 5211	50-53	14,300-14,800	10,000	11,000	60/132

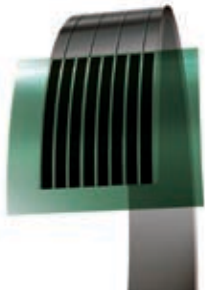
Design Assistance

Our engineering staff is ready and eager to apply the principals of magnetic design to your application. Trust us to contribute at any stage of your design process, from the initial planning stages to simply making performance improvements to your final product.

Custom Magnets and Magnetic Assemblies

Our two in-house machine shops have combined capabilities for cutting, surface grinding, OD grinding, and ID grinding most magnet materials to your print specifications. We offer Wire-EDM for cutting complex magnet shapes out of raw materials. That means you can get magnets in virtually any shape and size. We can also provide precision-machined metal (and other) components to create magnetic assemblies.

Best of all, Adams can complete most of your custom magnet or magnetic assembly orders within two to four weeks of the order date, and sometimes in as little as a few days.



Magnetic Viewing Paper

Magnetic viewing paper can help you visualize the magnetic fields surrounding your magnets. Use magnetic viewing paper to display magnetic field patterns by placing it near a magnet. Lines appear in the opaque paper showing the direction of magnetic force and the division between the magnetic poles.

SIZE	ITEM
2" X 3"	80E0003
12" X 12"	80E0006



Pocket Magnets

This handy magnetic tool helps you determine if the material you're working with is ferrous.

Diameter	Length	Pick-up Capacity	Item in Silver
0.375"	2.5"	2 Lbs	80A0001
0.500"	2.3"	5 Lbs	80A0002
0.750"	2.6"	7 Lbs	80A0003

Please ask us about additional colors and custom imprinting on pocket magnets.



FLEXIBLE MAGNETS ALLOW PRODUCT INVENTORS, ENGINEERS AND DESIGNERS AN ATTRACTIVE COMBINATION OF PROPERTIES AT LOWER COST THAN OTHER MAGNET MATERIALS.

COMMON APPLICATIONS

DISPLAYS
TOYS AND GAMES
ARTS AND CRAFTS
WAREHOUSE LABELS
PAINT MASKING
WINDOW AND DOOR SEALS
CONTROL CHARTS

Strength and Flexibility

Thickness typically drives the strength of flexible magnets, but maximum surface area adhesion also allows extra holding power and sheer strength. Adams magnetic strip adheres and remains flexible at temperatures as low as -40°F and as high as 175°F (so do the adhesives). A material properties chart can be found on page 4 for more specific characteristics.

Design and Handling Considerations

In addition to economics, a few additional factors to consider when choosing a flexible product include: pull requirements (due to weight, shape, and size of the applicable substrates), temperature, exposure to fluids such as water, oil, etc. and adhering methods. Adams can fabricate flexible magnets to your final desired size, or you can cut them yourself with simple household scissors. Our flexible magnets are non-hazardous, and made only from strontium ferrite based powder.

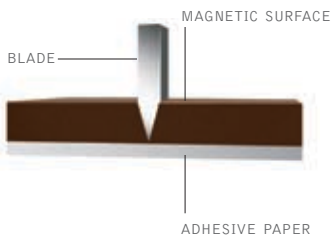
Adhesives and Colored Laminates

Adams can supply our flexible strip and sheet with rubber-based, acrylic-based or special adhesives. We offer several types of permanent adhesives that will fit all applications. We can also provide a repositionable adhesive on a custom order basis. Please let your salesperson know to what type of substrate you will be applying the magnet.

Flexible magnet materials can be laminated with the following stock colors: white (matte or gloss), red, orange, yellow, green, blue, black, silver and gold. Custom colors or patterns are available upon request.



Scoring



Magnetization and Strength

Adams magnetic strip uses multi-pole magnetization pattern for maximum holding power. We can also magnetize in matched pole configuration to give an even alignment on magnet-to-magnet applications widely used in tradeshow displays and signage. Standard grade materials are significantly stronger on one side and can have adhesives and vinyl applied to the weak side. For high energy strip, please see page 10.

Added Value Services

Extruded magnetic strip can be made in literally hundreds of combinations of width and thickness. Adams can fabricate to most imaginable sizes, and if we don't have it on hand, tooling can be made to meet your specific requirements. Cutting, slitting and scoring operations are done in house. Scoring (sometimes a helpful alternative to cut pieces) allows individual pieces to remain in roll format, and to be pulled from the roll one at a time.

Standard Tolerances

Unless otherwise specified, the following tolerances apply:

Thickness +/- 0.003 Width +/- 0.030

Custom Lengths 1% or +/-0.060 whichever is greater

EDGEMAG™ and MATCHMAG™

COMMON APPLICATIONS

- LARGE GRAPHICS
- MULTIPLE PIECE PHOTOS
- PUZZLES



EDGEMAG™

EDGEMAG is a thin, flexible magnetic strip that holds side to side as well as front to back, eliminating visible seams between graphic panels. When used in A / B rolls, you can mix and match the direction of alignment without encountering repelling forces.

Description	Item
.060 X 0.50 X 100FT adhesive side A	27S0001
.060 X 0.50 X 100FT adhesive side B	27S0002

MATCHMAG™

Matched pole magnetization allows you to apply magnets face-to-face without worrying about aligning the poles. When used in A / B rolls, you can mix and match the direction of alignment without encountering repelling forces. This is the perfect magnetic solution when steel is not a part of your project design.

Description	Item
.060 X 0.50 X 100FT adhesive side A	27B0011
.060 X 0.50 X 100FT adhesive side B	27B0051
.060 X 1.00 X 100FT adhesive side A	27B0111
.060 X 1.00 X 100FT adhesive side B	27B0112

DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.

WE CAN CUT OR SCORE TO YOUR FINAL SIZE REQUIREMENTS.

Standard Strip



.030 THICK- 200 FT ROLLS

WIDTH	ITEM#	PLAIN	INDOOR ADHESIVE	OUTDOOR ADHESIVE	ROLL Wt (LBS)	POUNDS PULL
0.50	27A0004		27A0001	27A0003	6	4.5
0.75	27A0007		27A0005	27A0017	8	6.5
1.00	27A0009		27A0008	27A0023	11	9.0
1.50	27A0011		27A0010	27A0100	14	13.5
2.00	27A0014		27A0012	27A0013	20	18.0
3.00	27A0036		27A0052	27A0104	28	27.0



.060 THICK- 100 FT ROLLS

WIDTH	ITEM#	PLAIN	INDOOR ADHESIVE	OUTDOOR ADHESIVE	ROLL Wt (LBS)	POUNDS PULL
0.25	27B0005		27B0002	27B0004	3	3
0.50	27B0015		27B0008	27B0124	5	6
0.75	27B0022		27B0016	27B0019	8	9
1.00	27B0028		27B0023	27B0025	10	12
1.50	27B0035		27B0029	27B0032	14	18
2.00	27B0041		27B0036	27B0038	20	24
3.00	27B0050		27B0091	27B0103	28	36



.085 THICK-150 FT ROLLS

WIDTH	ITEM#	PLAIN	INDOOR ADHESIVE	OUTDOOR ADHESIVE	ROLL Wt (LBS)	POUNDS PULL
0.50	27C0002		27C0001	27C0009	10	7.5
0.75	27C0005		27C0010	27C0011	14	11.0
1.00	27C0004		27C0003	27C0007	19	15.0
1.50	27C0012		27C0013	27C0014	29	22.5
2.00	27C0015		27C0008	27C0016	39	30.0
3.00	27C0017		27C0018	27C0019	59	45.0



.120 THICK-100 FT ROLLS

WIDTH	ITEM#	PLAIN	INDOOR ADHESIVE	OUTDOOR ADHESIVE	ROLL Wt (LBS)	POUNDS PULL
0.50	27D0007		27D0001	27D0021	9	9.0
0.75	27D0038		27D0028	27D0046	14	13.5
1.00	27D0012		27D0008	27D0040	18	18.0
1.50	27D0049		27D0034	27D0050	28	27.0
2.00	27D0041		27D0035	27D0052	37	36.0
3.00	27D0036		27D0039	27D0055	55	54.0

DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.

PLEASE CONTACT US IF YOU WANT US TO SLIT, CUT OR SCORE TO YOUR FINAL SIZE.

POUNDS PULL ARE APPROXIMATE, DEPENDING ON THE THICKNESS OF THE RECEIVING METAL SUBSTRATE.



HIGH ENERGY STRIP

COMMON APPLICATIONS

- MOTORS
- SENSORS
- LATCHES
- POP DISPLAYS
- ARTS AND CRAFTS

Magnetization and Strength

Adams supplies high energy flexible magnets in energy levels 1.0 through 1.4, in strip or die cut shapes. High energy flexible magnets can be magnetized through the thickness in several configurations. Please ask your salesperson the best method for your application. The holding strength of these magnets starts at 16 ounces per inch at energy level 1.0 and increases with higher energy levels.

Design and Handling Considerations

High energy flexible magnets don't chip, crack or shatter and provide an inexpensive solution for your light duty holding applications. These magnets can be easily fabricated to your exact size and shape requirements, with tight tolerances. Their maximum operating temperature is 175°F.

Added Value Services

In addition to fabricating this material to your exact size and shape, Adams can apply adhesive or vinyl to one side upon request. We can also package them in individual bags or other package types. Please let your salesperson know your application to assist with design and strength.



High Energy Strip

1.4 ENERGY LEVEL .060 THICK 100 FT ROLLS

WIDTH	.060 PLAIN	.060 ADHESIVE
0.50	23A0046	23A0048
0.75	23A0049	23A0051
1.00	23A0052	23A0054
1.50	23A0055	23A0057
2.00	23A0058	23A0060

1.4 ENERGY LEVEL .125 THICK 50 FT ROLLS

WIDTH	.125 PLAIN	.125 ADHESIVE
0.50	23C3046	23C3048
0.75	23C3049	23C3051
1.00	23C3052	23C3054
1.50	23C3055	23C3057
2.00	23C3058	23C3060

DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED. ADHESIVE LISTED IS OUTDOOR GRADE.

MANY OTHER SIZES, SHAPES AND MAGNETIZATION TYPES ARE AVAILABLE IN HIGH ENERGY FLEXIBLE MATERIAL.

LABELING

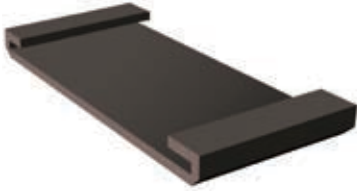
COMMON APPLICATIONS

WAREHOUSE LABELS

STORE PRICE TAG HOLDERS

NAME PLATES

CONTROL CHARTS



.060 CARDHOLDER MAGNET

WIDTH	LENGTH	ITEM
0.50	50 Ft	28HPC2050
1.00	50 Ft	28HPC2550
2.00	50 Ft	28HPC7501
3.00	50 Ft	28HPC9600

CARDHOLDER DIMENSIONS ARE NOMINAL. PLEASE ASK US IF YOU NEED A SPECIFIC SIZE.



.030 WRITE-ON/WIPE-OFF DRY-ERASE FLEXIBLE STRIP AND SHEET

WIDTH	LENGTH	ITEM
1.0	100 Ft	27A0025
2.0	100 Ft	27A0026
3.0	100 Ft	27A0027
24.0	50 Ft	22D0068



PRE-CUT LABEL BLANKS – NO ADHESIVE

SIZE	ITEM CUT	ITEM SCORED
.060 X 1.00 X 3.00	28BPC5300	28BPS5300
.060 X 1.00 X 3.50	28BPC5350	28BPS5350
.060 X 1.00 X 4.00	28BPC5400	28BPS5400

PRE-CUT LABEL BLANKS – INDOOR ADHESIVE

SIZE	ITEM CUT	ITEM SCORED
.060 X 1.00 X 3.00	28BNC5300	28BNS5300
.060 X 1.00 X 3.50	28BNC5350	28BNS5350
.060 X 1.00 X 4.00	28BNC5400	28BNS5400



SCORED LABEL BLANKS – YELLOW

ITEM	ROLL SIZE	ROLLS / BOX
29DY0051	1" X 50	4
29DY0052	2" X 50	2
29DY0053	3" X 50	1

DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED. OTHER SIZES ARE AVAILABLE UPON REQUEST.



SHEET

COMMON APPLICATIONS

- VEHICLE SIGNS
- DISPLAYS
- PAINT MASKING
- PRINTED PREMIUMS
- CONTROL CHARTS
- ARTS AND CRAFTS
- TEACHING & EDUCATIONAL AIDS



Magnetization and Strength

Adams magnetic sheet uses multi-pole magnetization pattern for maximum holding power of up to 144 pounds per square foot. Standard grade materials are significantly stronger on one side and can have adhesives and vinyl applied to the weak side. Double magnetization is available by custom order, which will give both sides similar pull strength.

Added Value Services

Adams high quality magnetic sheet offers a wide range of choices in thickness, width, length, surface laminates and custom shapes or even printed magnets. We can fabricate our magnetic sheet to your final size specifications in house, usually within three to five business days. For specific information on how many finished pieces yield from a roll, please visit our website and look up our sheet calculator tool.

Standard Tolerances

Unless otherwise specified, the following tolerances apply:

Thickness	+/- 0.003
Width	+/- 0.060
Custom Lengths	1% or +/- 0.060 whichever is greater

STRENGTH MEASURED IN POUNDS OF PULL

MAGNET THICKNESS	APPROXIMATE POUNDS PULL PER SF
.012	30
.015	40
.020	60
.030	85
.060	144

APPROXIMATE SHIPPING WEIGHT IN POUNDS

THICKNESS	50 SF	100 SF	200 SF
.015	15	30	60
.020	24	48	96
.030	31	63	126
.060	62	126	N/A

DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED. OTHER SIZES ARE AVAILABLE UPON REQUEST.



Standard Sheet

100 SF ROLLS BY THICKNESS (24 INCHES WIDE BY 50 FT LONG)

LAMINATE	.015 THICK ITEM	.020 ITEM	.030 ITEM	.060 ITEM
Plain (no laminate)	22A0001	22B0003	22D0002	22E0002
White Matte Vinyl	22A0006	22B0012	22D0011	22E0006
Indoor Adhesive	22A0003	22B0006	22D0005	22E0003
Outdoor Adhesive	22A0015	22B0008	22D0007	22E0004

METERMAG™

METER WIDE (39.37 INCHES) SHEETING ON 3 INCH CORE, 50 FT LONG

LAMINATE	.020 THICK ITEM	.030 ITEM
Indoor Adhesive	22BW006	22DW005
White Matte	22BW012	22DW011
Plain	22BW003	22DW002



BUSINESS CARD BLANKS

SIZE	FINISH	PACK QUANTITY	ITEM
.020 X 2 X 3.5	Indoor Adhesive	1,000	29BN0070
slab of 10 cards	Adhesive	200	29BN0071
.008 X 8.5 X 11 with 10 cards	Inkjet Printable	200	29GM0070

OTHER SIZES AND LAMINATIONS ARE AVAILABLE FROM STOCK.

WE CAN CUT TO YOUR REQUIRED SIZE WITH VERY SHORT PRODUCTION TIME.

PLEASE CONTACT US IF YOU DON'T SEE WHAT YOU'RE LOOKING FOR IN THIS BRIEF LISTING.



Magnetic Receptive Material

MAGBOND™ is a rubber-based ferrous sheet that magnets will stick to. It is supplied in rolls available with adhesive and white coatings. You can mix and match the surfaces you want.

MAGBOND™ .025 X 24 X 50FT	ITEM
Indoor Adhesive / Plain	22F0151
White Matte / Plain	22F0101
White Matte / Indoor Adhesive	22F0009

MAGSTEEL™ combines a printable surface with a lightweight metal, creating a magnetically receptive sheet. It is supplied with white printable surface on both sides, or with adhesive on one side.

MAGSTEEL™ SIZE	ITEM
.010 X 37.00 X 82FT adh/white	22F0004
.025 X 31.50 X 43.3"	29RP1363



Inkjet Printer Magnets

PRINTMAG™ is a permanent flexible magnetic material with an inkjet compatible surface. It can be used in most popular inkjet printers just like paper. Not for use with laser printers.

PRINTMAG™ 8.5 X 11	ITEM
White Matte	29GM0935
Gloss White	29GG0935
10 Matte Business Cards	29GM0070

ADAMS CARRIES A LARGE SELECTION OF PRE-CUT AND DIE-CUT MAGNETS IN A VARIETY OF SHAPES AND SIZES. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED. OTHER SIZES AND SHAPES ARE AVAILABLE.



MAGNET ASSEMBLIES CONSIST OF ONE OR MORE MAGNETS, AND OTHER COMPONENTS, SUCH AS STEEL, THAT GENERALLY AFFECT THE FUNCTIONING OF THE MAGNET. ADAMS SUPPLIES MAGNETIC ASSEMBLIES IN THREE MAIN STYLES: ROUND BASE, CHANNEL AND SANDWICH. WE CAN ALSO MAKE CUSTOM ASSEMBLIES IN JUST ABOUT ANY SHAPE OR SIZE.

COMMON APPLICATIONS

ANTENNA MOUNTS
VEHICLES FLAG HOLDERS
SIGN AND BANNER HOLDERS
CHANNEL LETTER GUIDES
MONEY CLIPS
POP DISPLAY COMPONENTS
WORK LAMP AND EMERGENCY LIGHT BASES

History of Quality

Adams Magnetic Products has been designing and manufacturing magnetic assemblies since 1950. Now, we have assembly and manufacturing facilities in Illinois, Kentucky and China to support the high demand for this popular product line.

Manufactured for Strength and Versatility

Adams manufactures low cost, high strength magnetic assemblies. We construct them using powerful magnet materials encased in plated or powder-coated steel cups, channels or plates. The magnets are magnetized together with the casing to create a holding force that is up to 32 times stronger than an individual ceramic magnet.

Pull strength is measured on a flat steel plate 3/8 inch thick. If your steel is thinner, coated or the surface is rough or rusty, the pull may vary. We recommend that you obtain a sample for testing in your specific application.

Versatile

We can supply assemblies with versatile mounting holes making it easy to insert a bolt, hook or clip. Our assemblies are ideal for positioning signs, displays, fixtures or anything else your business requires.

Large Selection or Custom Applications

We keep hundreds of thousands of standard assembly magnets in stock. We also make custom assemblies to serve any new application you may need.



STANDARD ROUND BASES WITH CHROME PLATING

OD	CUP HOLE	MAGNET HOLE	HEIGHT	POUNDS PULL	STOCK	ITEM
1.205	0.156	0.250	0.188	11	RB-20	64A0004
1.400	0.187	0.375	0.281	15	RB-40	64B0006
2.030	0.187	0.844	0.313	35	RB-50	64C0022
2.030	0.192	0.844	0.344	40	RB-51	64D0005
2.375	0.270	0.800	0.350	50	RB-60	64E0001
2.625	0.280	1.000	0.375	80	RB-70	64F0002
2.920	0.270	1.000	0.365	85	RB-75	64G0001
3.200	0.280	1.188	0.438	110	RB-80	64H0004
3.790	0.380	1.280	0.500	120	RB-85	64I0007
4.900	0.500	1.750	0.500	210	RB-90	64J0001

ROUND BASES WITH HOOKS

OD	HEIGHT OF BASE	POUNDS PULL	ITEM/NICKEL	ITEM/WHITE
0.984	0.275	9	64PN0025	64PW0025
1.250	0.275	18	64PN0032	64PW0032
1.580	0.315	28	64PN0040	64PW0040
1.970	0.394	49	64PN0050	64PW0050
2.480	0.551	78	64PN0063	64PW0063

ROUND BASES WITH PEM NUTS

OD	HEIGHT OF BASE	POUNDS PULL	ITEM/NICKEL	ITEM/WHITE
0.984	0.275	9	64PNN025	64PWN025
1.25	0.275	18	64PNN032	64PWN032
1.58	0.315	28	64PNN040	64PWN040
1.97	0.394	49	64PNN050	64PWN050
2.48	0.551	78	64PNN063	64PWN063

DIMENSIONS ARE IN INCHES. PULL FIGURES ARE MAXIMUM VALUES; THESE WILL BE ACHIEVED WITH A FLAT GROUND STEEL PLATE OF ADEQUATE THICKNESS WHERE CONTACT FACES ARE CLEAN. OTHER SIZES AND FINISHES ARE AVAILABLE.

NEO ROUND BASES: NICKEL COATED WITH PROTECTIVE COVERS



OD	CUP HOLE	HEIGHT	POUNDS PULL	STOCK	ITEM
1.205	0.125	0.188	40	RB-20	64ANC12
1.400	0.187	0.281	65	RB-40	64BNC06
2.030	0.187	0.313	90	RB-50	64CNC05
2.375	0.270	0.350	110	RB-60	64ENC01
2.625	0.280	0.375	140	RB-70	64FNC02
3.200	0.280	0.438	195	RB-80	64HNC04
4.900	0.500	0.500	300	RB-90	64JNC09

NEO ROUND BASES: RUBBER COATED



ITEM	ASSEMBLY TYPE	OD	CUP HT	ASSEMBLY HT	THREAD	POUNDS PULL
64RBM045	Male Stud	1.677	0.237	1.22	1/4-20	20
64RBM070	Male Stud	2.574	0.312	1.312	1/4-20	32
64RBM080	Male Stud	3.471	0.326	1.425	1/4-20	105



64RBF045	Female Standoff	1.677	0.237	0.237	M4	20
64RBF070	Female Standoff	2.574	0.312	0.312	M5	32
64RBF080	Female Standoff	3.471	0.326	0.326	M6	105

NEO ROUND BASES: MINIATURE SIZES



ITEM	ASSEMBLY TYPE	OD	CUP HT	ASSEMBLY HT	THREAD	POUNDS PULL
64AN000	Male Stud	0.625	0.196	0.511	M4	12
64AN001	Male Stud	0.977	0.314	0.664	M5	48
64AN016	Female Stud	0.625	0.196	0.508	M4	12
64AN025	Female Stud	0.977	0.314	0.665	M5	48
64ANH16	Threaded Hook	0.625	0.196	0.511	M4	12
64ANH25	Threaded Hook	0.977	0.314	0.665	M4	48

ITEM	ASSEMBLY TYPE	OD	CUP ID	MAGNET ID	CUP HT	POUNDS PULL
64ANC16	Counter Sunk Hole	0.625	0.138	N/A	0.196	9
64ANC32	Counter Sunk Hole	1.249	0.215	N/A	0.313	55
64ANC20	Counter Bore Hole	0.781	0.176	0.315	0.274	13
64ANC25	Counter Bore Hole	0.977	0.216	0.354	0.314	30

NOTES: ALL ITEMS ARE NICKEL PLATED. DIMENSIONS ARE IN INCHES. OTHER SIZES ARE AVAILABLE BY SPECIAL ORDER. PULL FIGURES ARE MAXIMUM VALUES; THESE WILL BE ACHIEVED WITH A FLAT GROUND STEEL PLATE OF ADEQUATE THICKNESS WHERE CONTACT FACES ARE CLEAN.



CHANNELS

ITEM	STOCK	WIDTH	HEIGHT	LENGTH	MOUNTING	FINISH	POUNDS PULL
65CA0001	CH-10-R	0.875	0.250	1.00	0.125 ctr hole	Nickel	5
65CA0006	CH-10-C	0.875	0.250	1.00	0.125 ctr hole	Nickel	15
61AN2002	CH-10-N	0.875	0.250	1.00	0.125 ctr hole	Zinc	35
65CB0005	CH-10-2	0.950	0.313	2.00	None	Nickel	14
61B0004	CH-10-2	0.950	0.313	2.00	Knob	Nickel	14
65CB0002	CH-10-2	0.950	0.313	2.63	0.170 side holes	Nickel	14
65CJ0001	CH-32	1.045	0.460	2.70	0.187 side holes	Zinc	25
65CJ0002	CH-32	1.045	0.460	2.70	Loop	Zinc	25
65CI0001	CH-3	0.906	0.250	3.00	Welded nut	Chrome	22
65CK0001	CH-35	1.500	0.460	3.00	0.260 slots	Zinc	60
65CM0001	CH-6	1.500	0.475	6.00	0.250 side holes	Zinc	100
65CN0001	CH-8	1.050	0.455	8.00	0.435 slots	Zinc	60
61N0002	CH-8	1.050	0.455	8.00	0.435 slots	Black	30
65CC0001	CH-12	0.625	0.190	12.00	0.150 side holes	Zinc	10
65CD0001	CH-12-3	1.720	0.620	12.00	0.250 side holes	Zinc	150

SANDWICHES

WIDTH	THICKNESS	LENGTH	POUNDS PULL	STOCK	ITEM
0.844	0.313	1.060	10	SA-10-R	62CA0001
0.844	0.313	1.060	16	SA-10-C	62CA0002
0.844	0.563	1.060	20	SA-103C	62CB0001
0.844	0.313	2.094	22	SA-20	62DC0001
0.844	0.313	3.060	22	SA-30	62E0001
0.625	1.060	2.125	50	SA-WELD	62CZ0001
0.625	1.000	2.125	50	SA-F	62J0001

MONEY CLIP MAGNETS

Each set comes with 2 plates and 2 magnets.

WIDTH	THICKNESS	LENGTH	ITEM
0.875	0.125	2.00	63C0002
1.125	0.125	2.00	63C0004

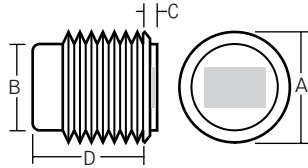
DIMENSIONS ARE IN INCHES. PULL FIGURES ARE MAXIMUM VALUES; THESE WILL BE ACHIEVED WITH A FLAT GROUND STEEL PLATE OF ADEQUATE THICKNESS WHERE CONTACT FACES ARE CLEAN. OTHER SIZES AND FINISHES ARE AVAILABLE.

Latches

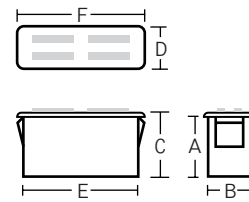
IS-SERIES ¹

A	B	C	D	POUNDS PULL	COLOR	STOCK	ITEM	STRIKE PLATE
0.54	0.44	0.07	0.55	6	Brown	IS-4	63D0001	63D0012
0.63	0.50	0.08	0.67	8	Brown	IS-6	63D0004	63D0013

IS-SERIES



FL-SERIES



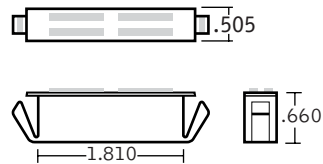
FL-SERIES – WHITE LATCHES

A	B	C	D	E	F	POUNDS PULL	ITEM	STOCK
0.438	0.313	0.469	0.370	0.861	0.936	4	63D0007	FL-20
0.438	0.313	0.477	0.390	1.322	1.550	6	63D0008	FL-30
0.452	0.383	0.500	0.406	2.135	2.500	10	63D0009	FL-40

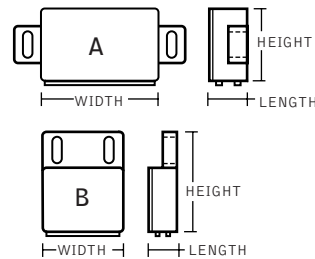
BASIC K MODULAR ADAPTER

WIDTH	HEIGHT	LENGTH	POUNDS PULL	COLOR	ITEM
0.505	0.625	1.810	20	Black	63D0011

BASIC K



ADAMS LATCH



ADAMS LATCH

HEIGHT	WIDTH	LENGTH	POUNDS PULL	STYLE	COLOR	ITEM	STRIKE PLATE
1.280	1.046	1.424	8	B	Beige	63D0014	69D0006
1.570	1.314	1.522	10	B	Beige	63D0015	69D0006
0.943	1.314	.520	10	A	Beige	63D0016	69D0006

DIMENSIONS ARE IN INCHES. ¹MAGNETIC LATCHES ARE SUPPLIED IN MOLDED PLASTIC HOUSINGS. ALSO AVAILABLE IN WHITE OR BLACK.



Custom Made Magnets and Assemblies

Adams is equipped to fabricate large and small volumes of custom magnets, and can work with any and all magnetic materials. We can provide engineering assistance to design a magnetic circuit, or we can work from your established print.

When designing a new magnetic circuit, all magnetic materials have a range of qualities that must be considered. Mechanical qualities include elasticity and tensile strength. Physical properties include density, thermal expansion, and electrical resistivity. Magnetic properties include Br, flux, coercive force, temperature coefficient, and Curie temperature.

Once a material has been selected, we offer the following services to fabricate to your final specifications

- Cutting, slitting and scoring of flexible magnet material
- Alnico cut-off or precision slicing
- Surface or Blanchard grinding
- Center-less grinding and OD/ID grinding
- Ganged-blade sawing
- Core drilling
- Wire EDM
- Assembly requiring precision fabrication
- Finishing, painting or marking
- Magnetizing

Please take some time to look through the rest of our catalog of stock items. If you do not see what you are looking for, let us know and we'll make it for you!



CERAMIC MAGNETS, ALSO KNOWN AS HARD FERRITES, ARE AMONG THE MOST ECONOMICAL MAGNETIC MATERIALS AVAILABLE. CERAMIC MAGNETS ARE OFTEN THE FIRST MATERIALS CONSIDERED WHEN DETERMINING A MAGNETIC SOLUTION. CERAMIC MAGNETS, HOWEVER, DO NOT STAND UP TO HIGH TEMPERATURES.

COMMON APPLICATIONS

DC MOTORS
MAGNETIC SEPARATORS
MRI
AUTOMOTIVE SENSORS
LOUDSPEAKERS
CRAFT PROJECTS
REFRIGERATOR MAGNETS

Machining and Tolerances

Ceramic magnets are very hard and brittle. Consequently, grinding must be done with a diamond wheel, and is easier when done prior to magnetization. Standard tolerances for ceramic magnet dimensions are +/- .005 inches for ground dimensions and +/- 2% of feature size for as sintered dimensions. Because of their brittleness, these magnets will not withstand impact or flexing. We recommend that they not be used for structural purposes. Ceramic magnets are chemically inert non-conductors, which is a benefit in many applications. However, this feature does eliminate the use of the EDM process to produce samples or special shapes.

Temperature Constraints and Methods of Magnetization

Maximum operating temperature for ceramic magnets is 250°C. Although you will experience magnetic losses at elevated temperatures, the losses are recovered when the material is brought down to normal ambient temperature. However, operating in very cold temperatures (-20°C) can result in loss of magnetic strength unless the circuit has been designed for such extremes. Anisotropic ceramic magnets must be magnetized in the direction of orientation, which is normally the same as the direction of pressing.

Added Value Services

Adams stocks square and rectangular blocks, discs and rings in ceramic 1,5 and 8 grades. Other configurations are not stocked except for specific customer requirements. The standard sizes can be cut and ground to meet your specific requirements. We also produce stock and custom magnetic assemblies using ceramic magnets.



Discs

DIAMETER	THICKNESS	GRADE	ITEM
0.312	0.125	5	30B0001
0.500	0.125	1	30B0004
0.500	0.197	5	30B0072
0.500	0.250	1	30B0007
0.709	0.197	5	30B0009
0.875	1.000	8	30B0011
0.985	0.156	5	30B0071
1.000	0.250	8	30B0054
1.146	0.331	8	30B0029

RINGS GRADE 5

OD	ID	THICKNESS	ITEM
1.250	0.375	0.187	30A0006
1.250	0.709	0.200	30A0007
1.750	0.866	0.275	30A0009
2.100	0.800	0.276	30A0022
2.375	1.000	0.280	30A0010
2.820	1.250	0.330	30A0014
3.375	1.280	0.425	30A0020
4.540	1.750	0.400	30A0021

RECTANGLES GRADE 5

THICKNESS	WIDTH	LENGTH	ITEM
0.187	0.750	1.000 w/ 0.187 hole	30C0005
0.190	0.230	0.870	30C0014
0.219	0.750	2.500	30C0057
0.250	0.375	2.000	30C0042
0.375	0.875	1.750	30C0011
0.387	0.875	1.875	30C0012

BLOCKS GRADE 8

THICKNESS	WIDTH	LENGTH	ITEM
0.187	0.875	1.870	30C0157
0.350	1.250	2.125	30C0045
0.375	4.000	4.000	30C0218
0.500	2.000	3.000	30C0170
0.500	4.000	6.000	30C0018
0.750	4.000	6.000	30C0026
1.000	2.000	3.000	30C0190
1.000	2.000	6.000	30C0126
1.000	3.000	6.000	30C0144
1.000	4.000	6.000	30C0035
1.000	3.500	10.625	30C0036

DIMENSIONS ARE IN INCHES. MAGNETIZATION IS THROUGH THE THICKNESS FOR ALL ITEMS LISTED.

FOR A COMPLETE CHART OF MAGNET MATERIAL PROPERTIES, PLEASE SEE PAGE 5.



RARE EARTH MAGNETS ARE WIDELY USED FOR MILITARY AND COMPUTER-RELATED FUNCTIONS. MANY COMBINATIONS OF ELEMENTS OR ORIENTATIONS ARE POSSIBLE. ADVANCES CONTINUE TO BE MADE IN NEO MATERIAL GRADES AND OPERATING TEMPERATURES.

COMMON APPLICATIONS

DC AND SERVO MOTORS

LINEAR ACTUATORS

MAGNETIC SEPARATORS

SPEAKERS

MICROPHONE ASSEMBLIES

SENSORS

HOLDING DEVICES

CLOSURE DEVICES

RARE EARTH: NEODYMIUM

Machining and Tolerances

Neodymium (we like to just call it Neo) is easily ground, although coolants must be used in the process to avoid spontaneous combustion of powder. Grinding should be completed before coating or plating is applied to protect the magnets from corrosion. Standard tolerances for Neo magnets are +/- .005" for ground dimensions.

Temperature Constraints and Methods of Magnetization

The temperature coefficient of Neo has triggered the development of several grades to meet specific operating requirements. Please refer to our chart of magnetic properties on page 5 to compare the characteristics of each grade. Before choosing a Neo magnet be sure to consider your application's maximum operating temperature.

Magnetization: Neo magnets require extremely high magnetizing fields and particular consideration must be given to this when designing complex assemblies. Neo can be magnetized in any direction as long as it is aligned properly. In some instances multiple pole magnetization is not possible. When it is possible, special fixtures are required.

Added Value Services

Our knowledgeable engineering department is always available to assist in determining the best grade and size of Neo magnet for your application. We also offer coating and plating choices for magnets we custom-machine.



NEO RINGS

OD	ID	THICKNESS	GRADE	PLATING	ITEM
0.230	0.100	0.250	3017	none	50A0038
0.250	0.060	0.060	3512	nickel	50A0076
0.365	0.200	0.250	3512	nickel	50A0036
0.375	0.136	0.100	3514	nickel	50A0073
0.500	0.136	0.060	3512	none	50A0037
0.875	0.275	0.200	3512	nickel	50A0071
0.866	0.354	0.393	3514	nickel	50A0085
3.000	1.650	0.500	3012	nickel	50A0049

NEO RECTANGLES AND SQUARES

THICKNESS	WIDTH	LENGTH	GRADE	PLATING	POUNDS PULL	ITEM
0.060	0.240	0.750	3512	nickel	1.8	50C0189
0.060	0.375	0.375	3512	nickel	1.7	50C0311
0.100	0.250	0.250	3512	nickel	2.0	50C0338
0.190	0.150	0.150	3020	none	1.2	50C0194
0.250	0.125	0.125	3020	nickel	1.2	50C0151
0.250	0.500	0.750	3512	zinc	9.0	50C0080
0.250	0.750	0.750	3512	none	17.0	50C0233
0.500	1.000	1.000	3520	nickel	40.0	50C0327
0.500	2.000	2.000	4512	nickel	100.0	50C0159

NEO RECTANGLES WITH .030 ADHESIVE ON ONE PULL FACE

THICKNESS	WIDTH	LENGTH	GRADE	PLATING	POLE w/ADH	ITEM
0.055	0.500	1.000	3512	nickel	south	50W0001
0.055	0.500	1.000	3512	nickel	north	50W0002

NEO DISCS WITH .030 ADHESIVE ON ONE POLE FACE

DIAMETER	THICKNESS	GRADE	PLATING	POLE w/ADH	ITEM
0.250	0.060	3512	nickel	north	50W0006
0.250	0.060	3512	nickel	south	50W0007
0.375	0.060	3512	nickel	north	50W0008
0.375	0.060	3512	nickel	south	50W0009
0.500	0.060	3512	nickel	north	50W0010
0.500	0.060	3512	nickel	south	50W0011
0.750	0.060	3512	nickel	north	50W0012
0.750	0.060	3512	nickel	south	50W0013
1.000	0.080	3512	nickel	north	50W0014
1.000	0.080	3512	nickel	south	50W0015

DIRECTION OF MAGNETIZATION IS THROUGH THE THICKNESS FOR ALL ITEMS LISTED.

DIMENSIONS ARE IN INCHES.

Neo Discs AND Rods

DIAMETER	LENGTH	GRADE	PLATING	POUNDS PULL	ITEM
0.095	0.100	3012	zinc	0.3	50B0001
0.120	0.060	3017	nickel	0.4	50B0002
0.120	0.120	3512	nickel	0.7	50B0078
0.187	0.060	3012	nickel	0.7	50B0154
0.187	0.125	3012	nickel	1.2	50B0104
0.187	0.350	3014	nickel	1.6	50R0095
0.187	0.625	3514	nickel	2.0	50R0053
0.248	0.200	3014	nickel	2.3	50B0219
0.250	0.100	3512	nickel	1.8	50B0376
0.250	0.125	3012	nickel	1.8	50B0091
0.250	0.200	3012	nickel	2.3	50B0008
0.250	0.250	3512	nickel	3.0	50B0115
0.250	0.375	3514	nickel	3.4	50R0037
0.250	0.500	3017	nickel	3.6	50R0020
0.375	0.060	3512	nickel	1.5	50B0389
0.375	0.100	3020	nickel	2.3	50B0215
0.375	0.125	3512	nickel	3.5	50B0155
0.375	0.250	3020	nickel	4.8	50B0186
0.375	0.500	3512	nickel	7.5	50R0078
0.500	0.060	3012	nickel	1.5	50B0069
0.500	0.125	3017	zinc	3.9	50B0249
0.500	0.125	3512	nickel	4.7	50B0149
0.500	0.250	3512	nickel	8.6	50B0132
0.500	0.375	3512	nickel	10.9	50B0368
0.500	0.500	3512	nickel	12.3	50B0395
0.625	0.060	3014	nickel	1.7	50B0292
0.625	0.375	3512	nickel	15.2	50B0114
0.750	0.060	3512	nickel	2.2	50B0324
0.750	0.125	3512	nickel	6.5	50B0238
0.750	0.375	3512	nickel	19.5	50B0379
0.875	0.500	3512	none	28.9	50B0031
0.875	1.000	4512	nickel	39.0	50R0055
1.000	0.060	4512	nickel	2.4	50B0321
1.000	0.125	3514	nickel	7.8	50B0253
1.000	0.250	3514	nickel	18.9	50B0058



DIRECTION OF MAGNETIZATION IS THROUGH THE LENGTH FOR ALL ITEMS LISTED.

POUNDS PULL/HOLDING FORCES ARE APPROXIMATE. SIZE, SHAPE, FLATNESS AND MATERIAL OF THE

TEST PIECES WILL EFFECT ACTUAL PULL FORCES.



RARE EARTH:
SAMARIUM COBALT

COMMON APPLICATIONS

HIGH PERFORMANCE MOTORS

MAGNETIC COUPLINGS

MAGNETIC SEPARATORS

SENSORS



Machining and Tolerances

We achieve dimensional size and tolerance by cutting or grinding with super abrasives. Samarium Cobalt (SmCo) cannot be ground with conventional drilling, turning or milling processes, and must be ground before it is magnetized. Additionally, large or complex assemblies are usually magnetized prior to assembly. Standard tolerances for Samarium Cobalt magnets are +/- .005" for ground dimensions. Adams stocks SmCo magnets in block, ring and disc form in a variety of sizes and grades, and we are fully equipped to produce the size and tolerance that you require.

1:5 Alloy Material

1:5 offers 16 MGOe to 22 MGOe and is made up of approximately 50% samarium and 50% cobalt. The 1:5 series has a maximum recommended operating temperature of 250°C. SmCo 1:5 magnets require lower field strengths than 2:17 materials to magnetize. In some instances, 1:5 material may be magnetized with multiple poles, provided that a magnetizing fixture is available.

2:17 Alloy Material

2:17 offers 24 MGOe to 32 MGOe and is composed of about 25% samarium, 5% copper, 18% iron, 2% hafnium or zirconium, with the remainder being cobalt. The 2:17 series has a maximum operating temperature of 350°C. Special grades of 2:17 are available which can operate to even higher temperatures. SmCo 2:17 requires extremely high magnetizing fields, and multiple pole magnetization is not possible.

SmCo Discs

DIAMETER	THICKNESS	GRADE	ITEM
0.118	0.118	18	55B0009
0.187	0.060	18	55B0001
0.250	0.100	24	55B0018
0.250	0.250	26	55B0035
0.312	0.200	20	55B0038
0.375	0.200	20	55B0040
0.500	0.190	18	55B0019
0.625	0.180	18	55B0031
0.750	0.180	26	55B0025
1.500	0.500	26	55B0063

SmCo RECTANGLES

THICKNESS	WIDTH	LENGTH	GRADE	ITEM
0.188	1.000	1.500	26	55C0058
0.250	0.375	1.000	18	55C0016
0.500	1.000	2.000	26	55C0033

DIMENSIONS ARE IN INCHES. DIRECTION OF MAGNETIZATION IS THROUGH THE THICKNESS. FOR A COMPLETE CHART OF MAGNET MATERIAL PROPERTIES, PLEASE SEE PAGE 4. OTHER SIZES, SHAPES AND MAGNETIZATION TYPES ARE AVAILABLE IN SmCo MATERIAL.



COMMON APPLICATIONS

MAGNETS
SEPARATORS
SENSORS
RELAYS
HOLDING MAGNETS
SECURITY SYSTEMS

ALNICO MAGNETS ARE MADE UP OF ALUMINUM, NICKEL, COBALT, COPPER, IRON AND TITANIUM, THOUGH IN SOME GRADES COBALT AND/OR TITANIUM ARE OMITTED. OTHER MATERIALS, SUCH AS SILICON OR ZIRCONIUM CAN BE ADDED TO THESE ALLOYS TO ENHANCE THEIR CHARACTERISTICS. ALNICO MAGNETS CAN HAVE VERY STRONG FLUX OUTPUT AND ARE STABLE AT HIGH TEMPERATURES.

Grinding and Tolerances

Alnico is hard and brittle (45-55 Rockwell C), and is not suitable for drilling, tapping or conventional machining operations. Most alnico magnets are manufactured using typical foundry casting techniques, where the molten alloy is poured into sand molds. Very small magnets, usually one ounce or less, are produced using the press and sinter techniques. Un-ground surfaces are gray to dark brown in color but are bright metallic after grinding. Adams provides in-house cutting and grinding to meet your application requirements. Close tolerances are attained by abrasive grinding and cutting. Standard tolerances for ground dimensions are +/- .005 inches. Tolerances for as cast dimensions vary with the actual part size.

Temperature Constraints and Magnetization

Alnico has the best temperature coefficient of any commercial magnet material, providing for excellent stability over a wide temperature range. A properly designed circuit using alnico magnets will have a stable flux output during temperature fluctuations. We also provide magnetic circuit design assistance. Maximum operating temperature for Alnico is 950°F.

Magnetization: Alnico magnets can be partially demagnetized if like poles of magnets are brought together. Placing individual magnets in contact with ferrous materials can also partially demagnetize them. Care must be exhibited in handling magnetized magnets. Typical open circuit Alnico 5 applications require a long magnetic length to pole surface ratio (usually 4:1 or greater) to ensure good magnetic performance.



ALNICO 5 Rods

DIAMETER	LENGTH	ITEM
0.125	6	40D0006
0.187	6	40D0315
0.250	6	40D0267
0.375	6	41D0074
0.500	6	40D0137
0.625	6	40D0037
0.750	6	40D0039
0.875	6	40D0042
1.000	6	40D0046
2.000	6	40D0507

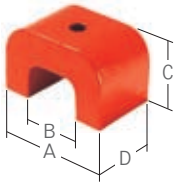


ALNICO 5 SINTERED AND CUT SQUARE BARS

THICKNESS AND WIDTH	LENGTH	ITEM
0.062	0.500	40C0101
0.125	0.750	40C0007
0.187	1.000	40C0057
0.250	1.000	40C0043
0.375	1.200	40C0023



DIMENSIONS ARE IN INCHES. DIRECTION OF MAGNETIZATION IS THROUGH THE LENGTH. OTHER SIZES, SHAPES AND GRADES OF ALNICO ARE AVAILABLE FROM STOCK, AND WE CAN FABRICATE TO YOUR SPECIFICATIONS.



HORSESHOES

A	B	C	D	HOLE SIZE	POUNDS PULL	ITEM
1.57	0.787	0.98	0.98	0.197	19	40G0031
1.77	0.905	1.18	1.18	0.197	26	40G0010



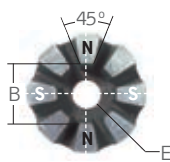
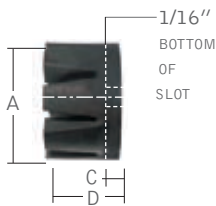
BUTTONS

DIAMETER	HEIGHT	HOLE SIZE	WEIGHT (oz.)	POUNDS PULL	ITEM
0.50	0.375	0.125	0.2	1.5	40F0041
0.75	0.500	0.188	0.5	4.0	40F0014
1.00	0.625	0.187	2.0	6.5	40F0016
1.25	0.75	0.187	3.0	14.0	40F0037

POTS

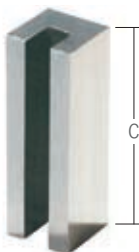
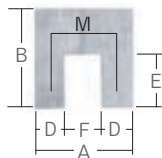
DIAMETER	HEIGHT	HOLE SIZE	WEIGHT (oz.)	POUNDS PULL	ITEM
0.687	0.625	10UNF	1.0	6	40F0023
0.750	0.313	0.147	0.5	7	40F0020
1.060	1.000	10UNF	3.4	18	40F0011
1.500	0.406	0.190	2.8	29	40F0022
1.375	1.180	10UNF	7.5	35	40F0012

BUTTON AND POT MAGNETS ARE CYLINDRICAL MAGNETS OF THE "HORSESHOE" TYPE. BOTH POLES ARE AT ONE END OF THE CYLINDER, SEPARATED BY A GROOVE. PULL FIGURES ARE MAXIMUM VALUES; THESE WILL BE ACHIEVED WITH SMOOTH STEEL OF ADEQUATE THICKNESS WHERE CONTACT FACES ARE INTIMATE AND CLEAN.



ROTORS / HOLDING

A	B	C	D	E	POLES	POUNDS PULL	ITEM
0.625	0.220	0.312	0.625	0.187	2	4	40F0002
0.875	0.406	0.437	0.875	0.265	2	12	40F0005
1.000	0.354	0.500	1.000	0.265	2	12	40F0006
1.250	0.600	0.312	0.750	0.187	2	18	40F0007
1.250	0.531	0.687	1.370	0.312	2	23	40F0008
1.000	0.500	0.250	0.750	0.266	4	16	40H0001
1.810	0.760	0.375	1.250	0.313	6	60	40H0003
2.000	1.000	0.375	1.250	0.500	8	65	40H0004



CHANNELS

A	B	C	D	E	F	POUNDS PULL	ITEM
0.625	0.375	5.00	0.187	0.125	0.250	16	40E0008
0.500	0.494	6.00	0.162	0.254	0.177	26	40E0001
0.875	0.750	6.00	0.250	0.438	0.375	45	40E0004
1.000	0.812	6.00	0.312	0.437	0.375	51	40E0005
1.250	1.000	6.00	0.406	0.500	0.438	62	40E0007

DIMENSIONS ARE IN INCHES. PULL FIGURES ARE MAXIMUM VALUES; THESE WILL BE ACHIEVED WITH SMOOTH STEEL OF ADEQUATE THICKNESS WHERE CONTACT FACES ARE INTIMATE AND CLEAN. OTHER SIZES AND SHAPES ARE AVAILABLE.

Ordering Information

If you are not ordering with our part numbers, please provide the following information:

- Information about how you want to use the magnet.
- Size limitations of the magnet or, if available, a sketch or drawing with dimensions and tolerances.
- Holding power or pounds pull required.
- Type of magnetic material, and degree of heat involved, if extreme.
- Quantities required.

Payments Accepted

We accept Visa, MasterCard, American Express or cash in advance, and Net 30 upon approved credit references.

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Elmhurst, IL 60126

Shipment Terms

Adams ships via UPS Ground or Federal Express, prepaid and added to your invoice amount. We will ship via truck; collect with the carrier of your choice.

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At Adams, we want you to be satisfied with every order. If you feel you must return an order, please consult with your sales representative. Formal authorization and an RMA number must be assigned by Adams Magnetic Products. Returns may be subject to a re-stocking fee.

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