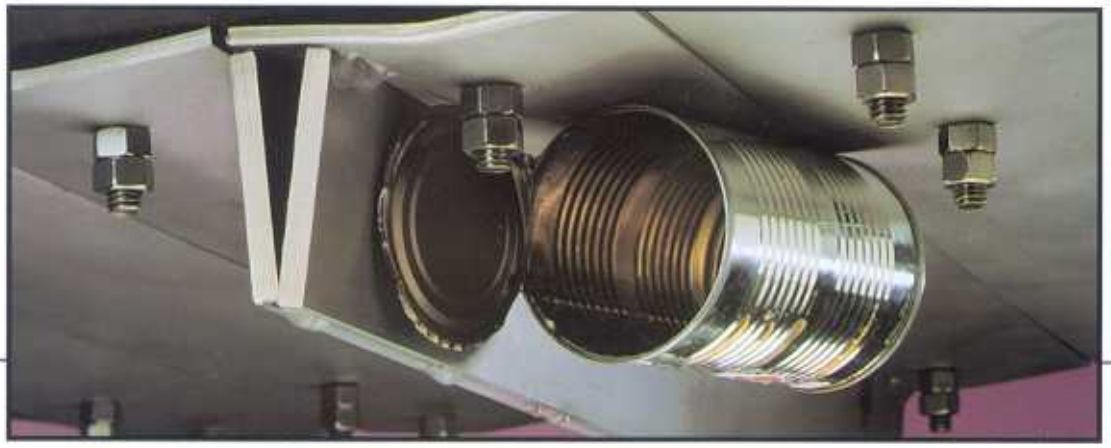
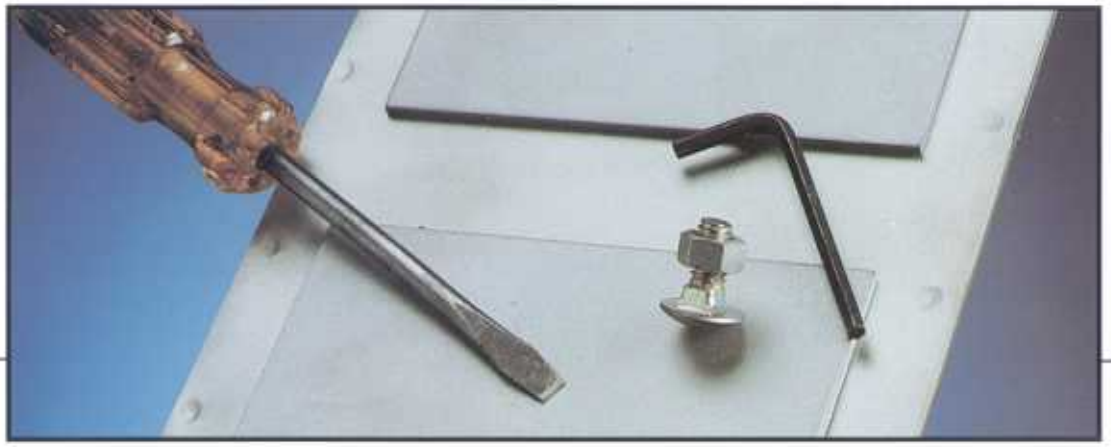
Dings
magnetic group

MAGNETIC SEPARATORS
FOR FERROUS AND NONFERROUS METALS

ENSURE
PRODUCT
PURITY



RECOVER
MATERIALS



PROTECT
YOUR
EQUIPMENT
INVESTMENT

Solutions For Your Separation Needs

Dings magnetic separators for ferrous and nonferrous metals are used in a wide variety of industries. Aluminum or other nonferrous metals can be separated from nonmetallics with the Dings eddy current separators. Dings magnets protect your product from ferrous metal contaminants. In addition to ensuring product purity, they prevent costly repairs and downtime by protecting processing equipment from damaging metal. Reclaiming metals, recovering saleable materials, and concentrating minerals are other important uses for Dings products.

Dings Co. has been manufacturing a full line of separators since 1899. Products range from 6" grates to 17-ton systems, and also include magnetic sweepers and magnets for material handling.

Through the years, Dings Co. has pioneered a number of key design features, such as the long-life magnet coil and the Durabelt. These innovations, along with a solid record of reliability, assure you of a high-performance product.

This catalog contains an overview of the Dings line; separate brochures are also available on each product. In addition to sales engineers located at our manufacturing facility, Dings Co. has local representatives worldwide. They can provide you with in-depth application information, selecting and sizing a Dings separator to your exact requirements.

Providing Separation Solutions Since 1899

Dings Co. magnetic group

(414) 672-7830 FAX (414) 672-5354

MAGNETIC SEPARATORS

Exclusive Coil Design Eliminates Magnet Burn-Out

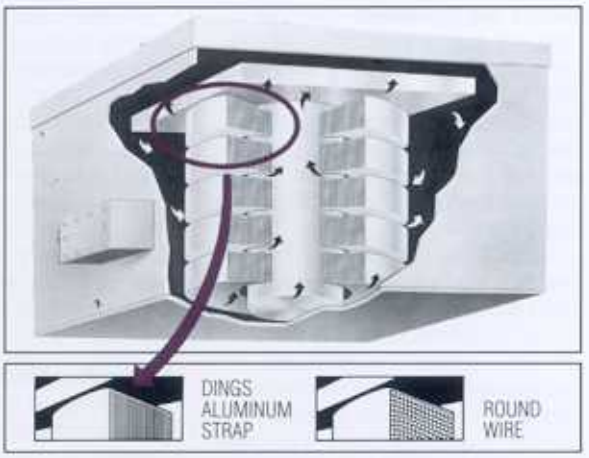
Dings electromagnets are wound with aluminum strap, an exclusive design that lasts longer and generates more magnetism than any other on the market.

Dings Co. pioneered the use of this specially treated metal as a new way to increase the magnetism generated by coils in a separator. Coils wound with this material don't require insulation, which takes up space in conventional designs. A Dings magnet can fit extra turns of coil into the same area, generating more magnetism and separating power. The result is a more compact magnet, an important advantage when space is critical.

Aluminum strap is recognized as the finest material available for coil winding, out-performing round wire (copper, or bare or anodized aluminum). With aluminum strap, every coil turn is exposed to oil-cooling. With round wire, inside turns are not cooled evenly. These coil hot spots can cause magnet burn-out.

Dings magnet coils stay cooler – and since electromagnets perform best at lower operating temperatures, this ensures a stronger, more efficient magnet.

The need for an oil expansion tank is also eliminated. Even in cold start-up conditions, each strap turn is in contact with coolant oil. As the oil heats, it expands and fills the magnet box. With round wire, the top turns cannot be cooled unless oil *completely* fills the magnet box, even when cool. These designs require an external expansion tank.



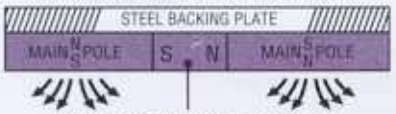
Patented Circuit Provides Stronger, More Uniform Magnetic Field

The Dings flux control circuit (DFC) was a breakthrough in the design of permanent magnetic separators. A magnetic circuit patented by Dings, it eliminates internal leakage between magnetic poles and improves separating performance.

Blocking magnets are strategically positioned in spaces between magnetic poles, where there would normally be air or filler material. These blocks control the flux by redirecting the leakage, which is wasted magnetism in conventional circuits. Nearly 100% of generated flux is converted to working force with the DFC circuit.

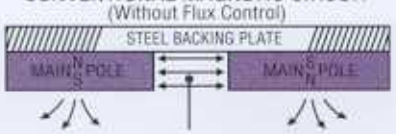
In addition to increasing the magnetic strength of Dings separators, this exclusive circuit design produces a very uniform magnetic field. This allows separators to be sized more efficiently for significant cost savings. A Dings magnetic drum with DFC can have a narrower face, similar to the width of the feeder. A drum without flux control must be considerably wider than the feeder because of low magnetic strength near each end of the drum.

DINGS FLUX MAGNETIC CIRCUIT

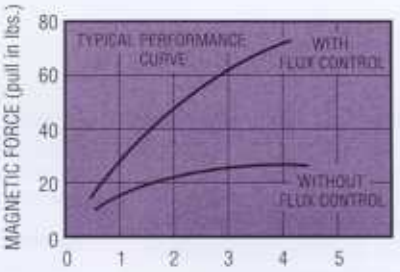


Flux control magnet converts internal leakage between poles into working magnetism.

CONVENTIONAL MAGNETIC CIRCUIT
(Without Flux Control)



Wasted magnetism



Magnetic force increases with Dings flux control circuit.

Dings products with flux control:
Deep Draw Drums, magnetic drums (ceramic magnet models), wet drums, permanent overhead magnets, and DFC magnetic pulleys.

Armor Cladding Protects Belt In Severe-Duty Use

Dings Co. was the first to develop an armored belt, allowing overhead magnets to be used in severe-duty applications. Thick plates of stainless steel protect the entire impact area on the Durabelt from the punishing action of sharp, heavy objects attracted by the magnetic field. The self-cleaning belt travels continuously around the separator, automatically cleaning off attracted steel.

The armor-clad Durabelt prolongs belt life in applications with sharp-edged steel or with frequent impact from large quantities of ferrous. Full-width metal cladding is available as an option for crossbelt applications.

The Durabelt is standard equipment on Dings severe-duty overhead magnets and Solid Waste Magnetic Systems. It can be ordered as an option for any overhead magnet.

Individual plates or cleats can be easily replaced in the field, saving on belt replacement costs and reducing downtime.

Overhead Magnets

Electro and Permanent – Overhead separators suspend above belt or vibratory conveyors, magnetically lifting ferrous metals out of bulk material. They are used for steel recovery, separating ferrous metals from nonmagnetic material. Overhead magnets also protect processing equipment, removing damaging tramp metal that can cause costly repairs and downtime.

Dings Co. manufactures two styles of overheads, electromagnetic (powered by DC from a rectifier) or permanent (nonelectric). Both are available as self-cleaning or stationary. Separated steel objects are held against the magnet until removed – automatically on self-cleaning models, or manually on stationary models. A belt travels continuously around the body of the magnet to discharge ferrous on self-cleaning models.

Overhead magnets are used for resource recovery, reclaiming steel for resale and separating ferrous contaminants from other recyclable material such as aluminum, glass, plastic, tires, crushed concrete, or wood.

Many facilities use overhead magnets to protect processing machinery, such as crushers at quarries, cement plants, and mines. At power plants, they keep tramp metal out of coal pulverizers. Pulp and paper mills use them on wood chips. In foundries, they remove chills, sprues, and gaggers from sand.

Design Innovations:
Long-life magnet coil. Exclusive flux control circuit (permanent magnet models).

Overhead magnets can be installed at a right angle across the conveyor (crossbelt) or inline over the conveyor head pulley.

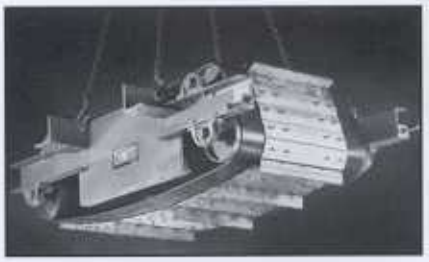
Severe Duty – This rugged version of the overhead magnet is designed for severe-duty applications such as recycling concrete, pallets, and construction and demolition (C&D) debris. The heavy-duty model is also recommended for processing recyclables at material recovery facilities (MRFs), separating steel from organic waste at composting sites, and for retrieving castings out of foundry sand.

The severe-duty magnet features the armor-clad Durabelt, a heavy-duty drive package for the self-cleaning belt, lagging on the drive pulley, and a wear plate that provides extra protection for the magnet impact area.

Hundreds of installations currently use Dings severe-duty magnets, and have found the savings in belt replacement costs and downtime to be substantial.

Design Innovations:
Long-life magnet coil. Exclusive flux control circuit (permanent models). Metal-clad Durabelt.

Severe-duty magnet removing rebar from crushed concrete.



Solid Waste Magnetic Systems – Powerful and highly selective, these systems are designed exclusively for separating steel from solid waste. They are a striking departure in size, shape, and appearance from any other electromagnetic separator. Systems are available for two different applications: a three-stage model which produces very clean, saleable steel and a heavy ferrous model which purifies waste of all equipment-damaging steel.

The three-stage system separates refuse that normally becomes trapped between pieces of steel. Ferrous material is attracted by a strong pickup magnet and conveyed by the cleaning belt through zones of polarity reversal formed by two other magnets. Entrapped pieces of paper, plastic, and other nonferrous material are freed as the metal pieces flip them loose when passing through polarity reversal. The result is clean steel – a recyclable product with a high resale value because it's free of entrapped nonmagnetics.

The single-stage heavies system is a powerful separator used to remove heavy ferrous metal from solid waste at refuse-derived fuel (RDF) plants. These facilities require a reliable method for removing *all* steel, including occasional heavy items, to prevent costly damage to processing equipment.The entire system is more than 16 feet long, with a huge electromagnet that's over 10 feet in length.

Design Innovations:
Long-life magnet coil. Metal-clad Durabelt.

Magnetic Deep Draw Drums

Designed for heavy-duty, high-volume ferrous recovery, the Deep Draw Drum is a permanent self-cleaning separator. Its rugged construction is ideal for separating ferrous metal from material such as shredded cars, slag, crushed ore, and ash at mass burn plants.

Similar in operation to the smaller Dings Perma Drum, it has a nonmagnetic outside shell that is driven around an internal stationary magnet. Ferrous metal is magnetically drawn out of the material feed, held against the revolving shell, and released when it reaches a discharge point beyond the magnetic field.

Although operation is similar, Deep Draw Drums have heavier duty construction than that required for Perma Drums. The drum shell is protected by a thick manganese wear cover which can withstand continuous pounding by a steady flow of heavy objects. It greatly extends the life of the drum, and can be replaced in the field if a new wear surface is needed.

The Deep Draw Drum's permanent magnet design outperforms electric-powered models in a number of important ways. It always operates at top efficiency, maintaining constant magnetic strength throughout the day. In contrast, an electro drum loses some magnetism and separating power as the coil heats up during operation. The Deep Draw Drum costs nothing to operate, and does not require a rectifier, generator, switch gear, or wiring. There are no magnet coils to burn out.

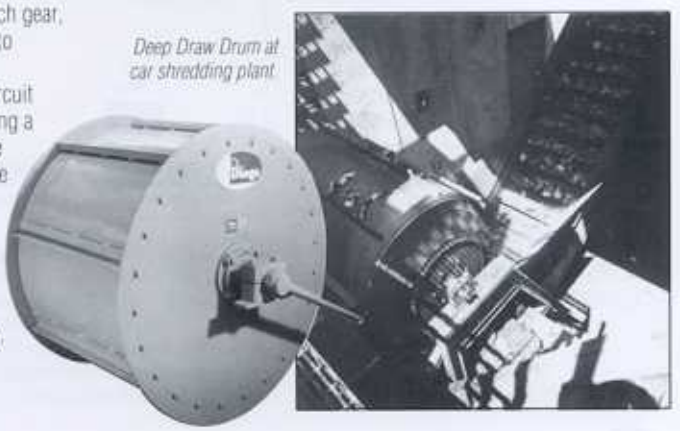
The Dings patented flux control circuit offers another key advantage, providing a stable, even magnetic field across the entire width of the drum to recover the maximum amount of steel.

Deep Draw Drums can be specified in sizes to fit almost any application – models are available up to 5 feet in diameter, weighing over 10 tons, to handle the largest jobs.

Design Innovations:
Exclusive flux control circuit.

This 42" x 84" drum was produced for a mass burn facility.

Deep Draw Drum at car shredding plant



Swinging Pendulum Magnets

This large and exceptionally durable magnetic separator was originally designed for reclaiming iron from steel mill slag. It can withstand the punishment of continuously attracting massive hunks of steel weighing up to 200 lbs. Other applications include removing ferrous metal from mass burn ash and recyclables where large ferrous is present.

A unique self-cleaning pendulum swings underneath a powerful electromagnet, cooled by a forced oil system. Attracted metal is discharged first to one side and then to the other. All shock and wear is absorbed by the manganese steel plates and cleats on the pendulum face, protecting the magnet.

This unique magnet is another example of the experience and technology that Dings can apply to answer specific industry requirements.

Design Innovations:
Long-life magnet coil.

FOR LARGE BULK & POWDER/GRANULAR

Magnetic Head Pulleys

Dings Perma Pulleys are permanent (nonelectric) magnetic separators that operate as head pulleys on belt conveyors. These low-cost, self-cleaning magnets remove tramp iron and purify materials conveyed in bulk form.

When material carried on a conveyor enters the magnetic field surrounding a Perma Pulley, pieces of ferrous metal in the material are attracted to the belt. They're held magnetically against the belt until carried to the underside of the pulley, where the belt takes them away from the magnetic field to be discharged. Nonmagnetic material falls away from the pulley in a normal trajectory. Separation is automatic and continuous.

Perma Pulleys are used to protect processing machinery from damaging tramp metal, eliminate ferrous contaminants from product, concentrate magnetic minerals in mining ores, and remove steel from recyclables. They're ideal low-cost separators for light-duty applications at material recovery facilities (MRFs), refuse-derived fuel (RDF) plants, composting sites, and locations recycling plastic, aluminum, wood, or glass.

In many applications, it's possible to replace an existing head pulley with a Perma Pulley, on a size-for-size basis. A wide range of diameters, widths, and shaft sizes are available.

Design Innovations:
Exclusive flux control circuit (optional).

Perma Pulley used in slag operation at steel mill, 42" x 60".

For maximum separating power, pulleys can be ordered with the optional flux control circuit.

Rare Earth Magnets Generate 16 Times More Holding Force

Powerful rare earth magnets are offered with Dings grates, plates, and small drums. Rare earth material produces magnetism intense enough to separate particles that are very fine or only weakly magnetic. Some metal oxides and mineral contaminants are susceptible to only a very powerful and concentrated magnetic force. In the past, this would have required high intensity electromagnets that were large and expensive. Rare earth magnets provide relatively low cost separation of these difficult materials.

COMPARED TO CERAMIC, DINGS RARE EARTH MAGNETS HAVE 4 TIMES MORE PULLING POWER AND 16 TIMES MORE HOLDING FORCE.

Rare earth magnets have dramatically more pulling and holding power. Both forces are important for separating weakly magnetic material. Pulling or attracting power is needed to make the separation; holding power prevents the nonmagnetic product flow from brushing off the attracted magnetic particles.

Ceramic VIII: Superior Grade Magnetic Material

Dings Co. uses the best grade of ceramics for grate magnet tubes, ensuring a stronger, longer-lasting magnetic field. Ceramic VIII has a better resistance to demagnetization than Ceramic V or other lower grade materials.

This resistance is particularly important in grates because of the arrangement of polarities inside the tubes. For maximum separating power, the magnetic components must be assembled in the tubes with like poles facing each other. However, these repelling poles create a strong demagnetizing force which can weaken the performance of the grate magnet.

Ceramic VIII was developed specifically to overcome this negative effect, making it the ideal material for grate magnets. Ceramic VIII also outperforms Ceramic V in applications involving high temperatures.

Sanitary Finish

Many food and pharmaceutical applications require sanitary finish on processing equipment. Dings grate and plate magnets can be ordered with optional sanitary construction to meet the specific requirements of the food and drug industries.

FOR POWDER/GRANULAR

Magnetic Drums

These all-purpose magnetic separators purify free-flowing powders and granular materials or concentrate and reclaim products in such materials. Nearly every kind of processing industry uses magnetic drums to remove ferrous metal contaminants.

They're used extensively in foundries and for recycling plastic, aluminum, and glass. Magnetic drums also protect grinders, crushers, and other processing equipment against tramp iron damage, preventing costly repairs and downtime.

The permanent (nonelectric) drums can be installed inside closed chutes, at outlets of chutes and hoppers, or where materials discharge from feeders and conveyors. They're available in a range of diameters and widths in several styles: drum only, drum and housing, and a laboratory model. For severe-duty applications, Dings Deep Draw Drums are recommended.

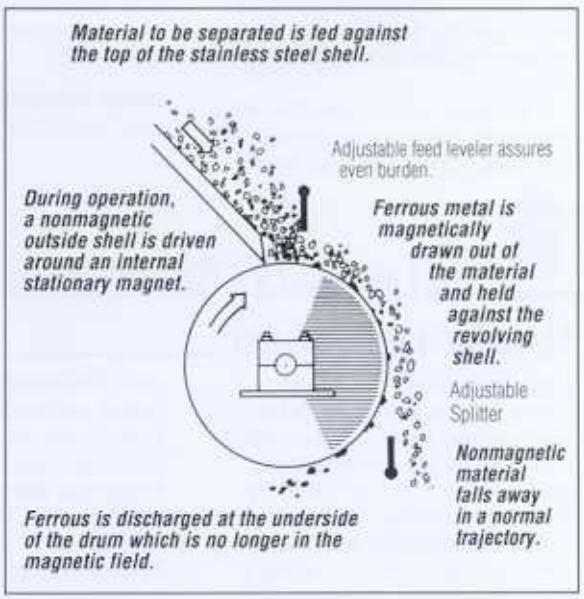
The magnetic assembly uses Ceramic VIII, the highest grade available. On models using ceramic magnets, a patented flux control circuit provides a stable, even magnetic field across the entire drum.

The 12" diameter drum and the laboratory model can also be specified with a rare earth magnet assembly. Rare earth drums separate iron fines and

weakly magnetic particles, and are an economical alternative to larger and much more costly high-intensity electromagnetic separators.

Design Innovations:
Exclusive flux control circuit (ceramic magnet models).

In most applications, material is fed into the hopper (on right of photo) as a thin, uniform stream by an optional vibrating pan feeder.



The laboratory drum, usually specified with rare earth, can be used for processing small, batch-type samples in laboratories and pilot plants which have low-volume feed rates.

Grate Magnets

Grate magnets remove small particles of ferrous metal from free-flowing powders and granular materials. These permanent magnetic separators are a very cost-effective and efficient way to remove damaging tramp metal and light concentrations of ferrous contaminants from chemicals, pharmaceuticals, cosmetics, plastics, food, grain, fertilizer, sand, clay, and minerals.

Grate magnets are so efficient because they work *inside* a product flow; there's no need for magnetism to reach through any great depth of material.

Standard grate tubes are 1" in diameter, with a smooth stainless steel surface on the outside, and an assembly of ceramic or rare earth magnet material sealed inside. To produce a more uniform separating force, Dings grates contain magnetic material throughout the *entire* tube, and are not partially loaded with springs and fillers. Deflectors are recommended on all single bank grates for maximum separation.

A variety of designs are available to match flow capacity, location, degree of ferrous contamination, and cleaning convenience required.

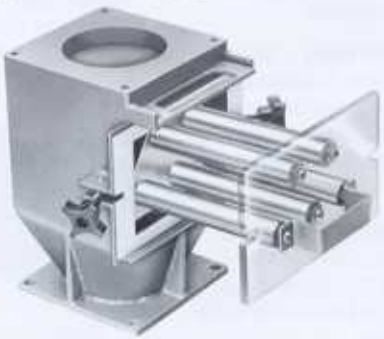
Easy Clean Grate Magnet is shown in the cleaning position, with internal magnetic tubes pulled out of stationary tubes.

Easy Clean – Tube-within-a-tube drawer design allows for quick, convenient removal of ferrous contaminants, eliminating messy hand cleaning. To clean, the drawer is slid forward, out of the product flow. The internal magnetic tubes are pulled from the tube assembly, releasing the ferrous attracted to the surface of the outer tubes.

Auto Clean – A pneumatic system cleans the rare earth magnetic tubes automatically, at regular intervals controlled by a timer. The patented Auto Grate is ideal for inaccessible locations where manual cleaning is difficult, or for applications where ferrous content in product flow is very high.

Rotary – This motorized separator is ideal for materials that do not flow easily and tend to plug up standard grate magnets. Rotary grates are recommended for pulverized minerals and ceramics, fibrous substances, and fine cohesive materials such as magnesium oxide, zircon powder, fly ash, alumina, gypsum, lime, powdered sugar, cornstarch, and flour. The rotary action not only prevents material from bridging, but it improves magnetic separation by agitating cohesive powders. It's available in ceramic or rare earth.

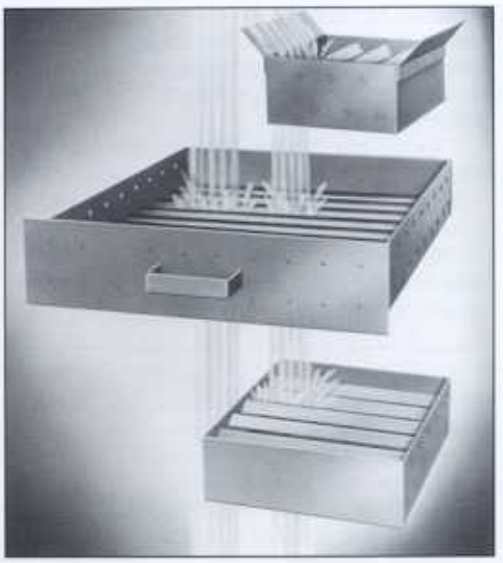
Rotary grate has magnetic tubes in a circular arrangement held in place by two stainless steel end plates.



Hopper magnet is shown with magnetic tube drawer pulled outward for cleaning.

Hopper – Designed for the plastics industry, the hopper magnet protects molding machinery and other processing equipment from damaging ferrous metal. Separation can be conveniently monitored through the transparent drawer face. Slide gate shuts off product flow and is provided as a standard feature. An easy clean design is available.

Heavy-Duty Pit Magnet – Extra sturdy grate magnet mounts securely over receiving pit opening to remove ferrous from grain stream. Larger 2" square magnetic tubes and wider tube spacing allow the pit magnet to be used in high volume applications. Sizes range from one to five ft. square or rectangular.



Three types of unhoused grate magnets: wing type (top), drawer, and plain frame.

Round or square grid magnets are used where spaces are too confined for a framed type.

Housed grate magnets have pull-out drawers for cleaning convenience, and can be supplied with any type of transition necessary.

Product in a vertical chute flows through self-cleaning magnetic tubes on right side of Auto Grate. Top plates cover piston operating section and ferrous discharge area.

Plate Magnets For Chutes

Standard Ferroplate – The high surface strength of Ferroplates makes them ideally suited for sloping chute applications, removing damaging metal and ferrous contaminants.

These low-cost, permanent plate magnets are widely used in many industries, including food, grain, chemicals, plastics, textiles, cosmetics, minerals, and pharmaceuticals. Higher strength models can be used to separate ferrous metals from fibrous, viscous, or liquid material.

Ferroplates are made of stainless steel in several models that differ in magnetic power. Each is available in sizes to fit any chute from 4" to 72" wide.

A unique Dings design feature produces greater holding power and therefore, offers better protection, than other plate magnets available. Standard Ferroplates have a magnetic faceplate with large raised pole pieces and a fully exposed air gap between poles for optimum performance.

Ferroplates are easily installed by cutting an opening in the underside of the chute and hinging the magnet over the open section.

Although Ferroplates are ideal for many applications, they can be installed only in rectangular, sloping chutes. For vertical, round, or pneumatic lines, separators described below have plate magnets mounted in housings. A section of chute must be removed for installation.

Perma Chute – Powders and coarse materials that fall freely through a vertical chute can be effectively cleaned of ferrous contaminants with Perma Chutes.

Two massive permanent magnets are mounted on opposite walls of the Perma Chute enclosure, projecting intense magnetism into the product flow area. Perma Chutes are used where space is limited, with materials which couldn't pass freely through a grate magnet, or when the chute is too vertical for a plate magnet to work effectively.

Quick Clean Perma Chute – The advantages of a free-flow magnetic separator are combined with the convenience of a built-in drawer for disposing of the separated metal. The quick clean design saves time and eliminates messy hand cleaning.

This overhead view shows how separated metal is removed from the Quick Clean Perma Chute by simply pulling the drawer forward, out of the magnetic field.

The separating action in the Perma Chute is enhanced by a flow diverter across the inlet.

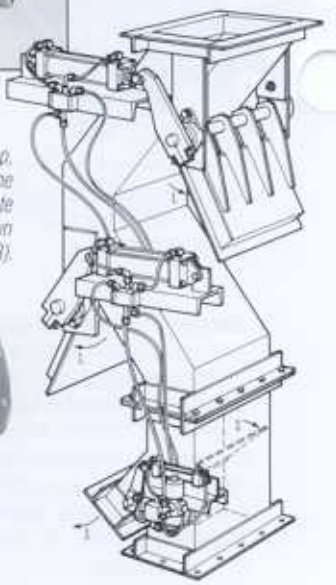
Magnetic Hump – These specially shaped separators are used in rectangular chutes or round pipes where flow speeds and depths exceed the capacity of plate magnets. Humps are recommended if the flow is vertical, or if the angle of the chute is more than 70 degrees.

The angular shape of the housing conducts the powder or granular material directly against the plate magnets. The product stream strikes the first magnet, then changes direction to hit the second magnet. This slows and agitates the material, resulting in a better separation than with conventional chute separators. If product flow is light, one magnet in the half hump model may provide sufficient separation.

Easy Clean Magnetic Hump – Designed for use in remote locations, this separator has a pneumatic system to control the self-cleaning cycle. It eliminates downtime and is a practical solution to purifying materials in hard-to-reach pipes or chutes.

Round Pipe Separator – This separator allows Ferroplates to be used on round, sloping chutes carrying dry material. It has a plate magnet mounted on a rectangular center section, with round adapters on each end.

Round Pipe Separator



In the Easy Clean Magnetic Hump, air cylinders are activated to control the magnetic plates (1) and the diverter gate (2), releasing accumulated ferrous down the discharge chute (3).

Pneumatic In-Line Magnet

This separator installs directly into the pneumatic line to capture ferrous contaminants in the product stream without inhibiting material flow. An enlarged line section with an external magnet, the separator may be installed in horizontal or vertical pneumatic lines. The hinged magnet swings away from the housing for easy cleaning.

Dings Co. uses a magnet with a larger surface area than many similar units on the market. The magnet in our 4" separator has 37% more surface area to collect more tramp metal and increase the holding power. Models are available for 2", 3", 4", 5", and 6" lines.

Plate Magnets For Conveyors

Standard Ferroplate – Ferroplates can be used as a low-cost method of removing damaging tramp metal and ferrous contaminants from conveyed material. If the depth of burden or amount of ferrous to be removed exceeds the capacity of a plate magnet, other separators are recommended.

Ferroplate Self-Cleaner – Installed over a conveyor, this separator attracts and automatically transfers and discharges ferrous material away from the conveyor. It's recommended for light-duty applications with thin burdens on narrow conveyors.

FOR LIQUIDS & SLURRIES

Liquids & Oils

Hydro Hump – Ferroplates in an angled housing remove ferrous contaminants in a liquid pipeline. The Hydro Hump directs the liquid product flow first against one plate magnet, then against a second. It has a pressure tight design and 150 lb. flange fittings on both ends.

Pressure tight cleanout ports.

Magna Trap – This low-cost liquid pipeline separator traps tramp iron, preventing costly damage to pumps and filters. The Magna Trap consists of a cast body, in either brass or stainless steel, a neoprene gasket, and a magnet that is removable for cleaning. Optional sanitary construction is available.

Oil Reservoir Magnet – Bits of rust, abraded steel, and welding spatter circulating in oil can cause pump damage and rapid gear wear. These small grip magnets remove tiny pieces of steel from hydraulic and transmission oil. They're placed inside oil reservoirs and transmission pumps in excavators, heavy-duty trucks, manufacturing equipment, and other machinery.

Magna Traps mount in standard 2", 3", and 4" NPT pipe fittings.

Oil reservoir magnets in 7" and 3-1/2" lengths.

Magnetic Wet Drums

These permanent (nonelectric) magnetic drums are designed for continuous separation of ferrous minerals from slurries. They're widely used in iron ore concentrating plants to separate taconite from nonmagnetic tailing materials. Heavy media coal prep plants use them to recover magnetite from wash water. Other applications are in plants processing gravel and stone aggregate.

The flux control circuit patented by Dings Co. was a breakthrough in the design of wet drums. The exclusive magnetic circuit eliminates wasted magnetism by converting internal leakage into working force. In addition to increasing magnetic strength, this circuit allows Dings wet drums to be sized more efficiently for significant cost savings.

Design Innovations:
Exclusive flux control circuit.

Wet drums can be ordered in various drum lengths, diameters, magnetic strengths, and configurations.

Taconite processing plant with large installation of Dings multi-stage drum separators.

FOR SPECIALTY APPLICATIONS

Magnetic Agitation Separator – Materials containing a high percentage of ferrous need a separator that cleans as well as separates. Agitation frees entrapped nonmagnetic contaminants, producing an ultra-clean magnetic product. Typical applications include crushed borings, metal chips, foundry shot, slag, and magnetic ores.

Magnetic Tube Tester – This laboratory electromagnet determines the percentage of magnetics in ores, minerals, and other substances. The powerful magnet holds minute particles of magnetic material inside a glass tube, while nonmagnetics are removed by vigorous agitation and wash water.

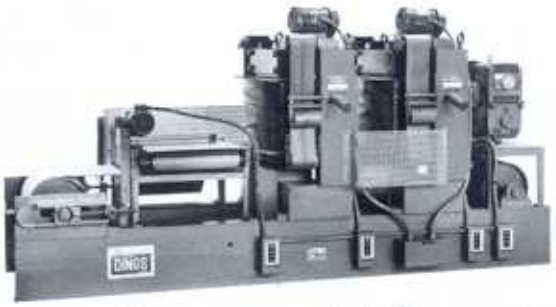
Heavy media double drum separator with optional staggered tank design.

High Intensity Magnetic Concentrator

Model EBK Crossbelt – It's the most powerful and effective magnetic separator available for seed cleaning and for concentrating weakly magnetic minerals.

Some minerals, such as ilmenite, monazite, huebnerite, and wolframite, don't respond to the magnetic force of a conventional separator. But the self-cleaning EBK selectively lifts them out of a conveyed burden and discharges them as distinct and clean concentrates. Field intensity is adjustable for selective recovery.

Seeds from contaminating weeds can be eliminated from alfalfa, clover, and other crop seeds. All seeds are treated with a powdered iron and water mixture, which adheres only to rough-surfaced weed seeds and cracked or poor quality seeds. The EBK magnetically separates these from the uncoated crop seeds.



The optional scalper magnet on the EBK removes any large pieces of ferrous before the material reaches the high intensity magnets.

Magnetic Sweepers

Magnetic sweepers protect tires from damage caused by nails, screws, wire, and other steel objects. They can drastically reduce tire repair and replacement costs, and eliminate costly downtime by keeping vehicles in service. Users can recover the cost of a magnetic sweeper in a few months, and then continue to save, year after year.

Sweepers vary in the type of mounting, magnetic strength, type of discharge, and the width of the path cleaned by the magnet. Dings Co. has the largest selection in the industry, with a style and size to fit every budget.

Operation is simple: magnetic sweepers are moved over areas that need cleaning, automatically picking up loose pieces of ferrous material and holding them until the load is ready to be discharged. Dings sweepers are nonelectric; they cost nothing to operate because they're built with permanent magnets. The magnetism is covered by a lifetime warranty.

Road Magnet – Mounted on trucks or forklifts or towed behind them, road magnets can be used on pavement, gravel, grass, or ground. They are used to clean highway shoulders, parking lots, driveways, construction sites, loading docks, truck terminals, landfill roads, ramps, airports, parks, stadiums, race tracks, shipyards, schools – everywhere vehicles travel.

Floor Magnet – These small magnetic sweepers are designed for walk-behind use at plant sites and other facilities. They are available in widths ranging from 18" to 36".

Tireguard

Metal picked up by the Flatguard can be accumulated in removable inboard pans.

Pathguard floor sweeper features convenient stand-up unloading.

Load of tire-damaging ferrous material is discharged from the Roadguard with a lever release.

World's largest: FT3-24 modular sweeper clears a 24-foot path in a single pass.

Yard magnet hangs under utility vehicles.

FOR MATERIAL HANDLING

Scrap-Lifting Magnets

These large diameter electromagnets transport steel scrap in scrap processing yards and foundries. They can handle tons of scrap continuously throughout the day.

The Electricore 8 features a dramatic design innovation – resulting in substantially more lifting power. Most lifting magnets have a heavy solid steel core which forms a pathway for the lines of force. In the patented Dings design, that core has been replaced with a coil that actually *generates* magnetism – an electrified core. Adding this magnetism to the force produced by the main electromagnet coil creates more total lifting power than any other design.

Electricore 8 magnets are wound with anodized aluminum strap, the finest material available for coil winding. The anodized coating actually exceeds the highest insulation rating – Class H. Since no insulating material is required, this exclusive design eliminates the major cause of coil failure: insulation breakdown. The result: a scrap magnet that's built to last longer and stay cooler throughout the working day.

Design Innovations.

Electricore 8 magnets available in 37" through 77" diameters.

Lifting Magnets

Elektrolift – Material handling electromagnets are used in metalworking plants to hoist and transport steel parts, forgings, castings, plates, and bars. They save time and effort because they can lift steel more quickly and conveniently than mechanical devices.

With an Elektrolift, there's no need to attach and secure lifting supports. Nor is it necessary to block up loads on the floor or to move loads apart to make room for mechanical devices.

Although the largest models are powerful enough to hoist thousands of pounds, the lifting force depends on both the thickness and type of surface of the steel object. The force is more effective on thick, flat, and clean steel than on thin, irregular, or rusted steel.

Magna Hoist – Special surface adapters on the Magna Hoist make it especially effective for lifting irregular-shaped loads.

The bottom magnetic face can be ordered in various shapes to conform to the piece to be lifted. This increases the lifting power, since more magnetic surface is in contact with the material. These optional surface adapters include adjustable cross bars, angular poles, or curved poles, which Dings can custom-machine to the curvature of the material to be lifted.

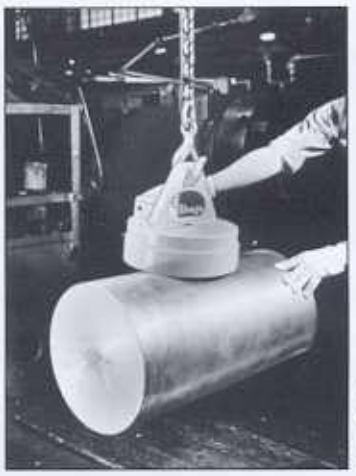
Magna Hoist electromagnets are available in a standard size of 8" x 15" x 3-1/2", as well as a half-size model that's 8" long.

Perma-Matic Hoist – This nonelectric material handling magnet operates on a unique every-other-time cycle. When it's first lowered against a steel object, it attracts and holds that load as it's raised. When lowered the next time, it releases the load automatically. This simple action allows the operator to stay away from the load at all times.

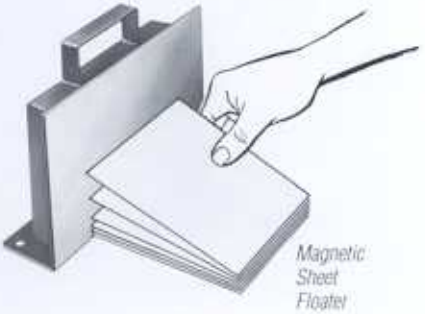
Since the magnetism is permanent, there's no need for batteries, wiring, or rectifiers, making the Perma-Matic Hoist fully portable and unaffected by power outages.

Magnetic Sheet Floater – This portable magnetic device saves time and cuts costs on any job where stacked steel sheets are handled in production. It boosts press output because it eliminates the delay in prying sheets apart.

When a sheet floater is placed against a stack of steel sheets, magnetism passes into the sheets, causing them to repel each other. As a result, sheets near the top of the stack separate. As fast as the top sheet is removed, the next one pops up – ready to grasp and take away.



Elektrolifts operate on 115V AC and are available in 4", 8", 13", and 18" diameters.



Magnetic Sheet Floater

The angular face on this Magna Hoist forms a strong two-point contact for lifting pipe and other cylindrical pieces.

Hand And Utility Magnets

Plunger Hand Magnet – Ideal for checking magnetic content in bulk materials, plunger hand magnets are used by labs, mines, and processing plants. Attracted ferrous materials are released after inspection by pulling on the plunger top. Available in Ceramic VIII or high intensity rare earth models.

Grabber Hand Magnet – This hand magnet speeds the handling of steel bolts, nuts, screws, and parts. It includes a release handle for safe unloading. Models in two magnetic strengths available.

Dipster Magnet – The Dipster makes it easy to retrieve parts from dip tanks and wash tanks. The magnet is encapsulated in epoxy and is attached to a 4 ft. long hardwood handle.

Horseshoe Magnet – Magnetic pull on flat, thick steel is almost 50 lbs. with this 3" wide alnico magnet.

Utility Magnet – Three sizes available; the strongest has a maximum magnetic pull on flat, thick steel of 55 lbs. Brass sleeve protects inside alnico magnet. Often used for extracting broken drill bits out of walls.

Plunger Hand Magnet

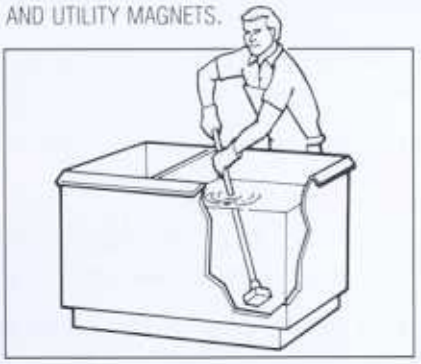
Grabber Hand Magnet

Horseshoe Magnet

Utility Magnets

Perma Bar Magnet – Holds tools, templates, and parts securely. Magnetic pull on flat, thick steel is nearly 7 lbs. per inch of length. Available in lengths from 4" to 72".

THE MAGNETISM IS PERMANENT ON ALL HAND AND UTILITY MAGNETS.



Dipster Magnet

Perma Bar Magnet

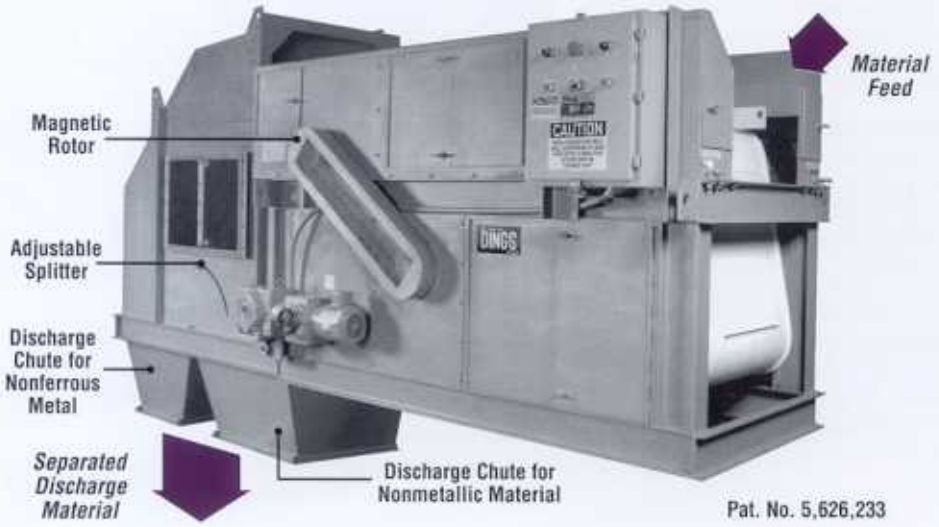
FOR NONFERROUS METAL RECOVERY

EDDY CURRENT SEPARATOR

Deep Field Design Sets New Standards For Nonferrous Recovery – When it comes to reclaiming nonferrous metal, one system's design separates itself from the rest – the Dings eddy current separator. It's built for years of reliable service, backed by almost a century of experience in magnetic technology and manufacturing. Dings unique design provides maximum recovery, even in the most challenging environments. Its deep magnetic field can handle more tons and recover more metal, giving the Dings eddy current separator a distinct payback advantage.

The Dings eddy current separator has three patented features which extend belt life, protect the magnetic rotor assembly, and reduce maintenance. These include a four-pulley design for the conveyor, special arrangement of the belt cleats, and Dings exclusive triple layer shell which provides maximum protection for the magnetic rotor. On the outside of the shell, ceramic tile is fused to the fiberglass wear shell, which surrounds a heavy-duty stainless steel cover encapsulating the magnetic rotor.

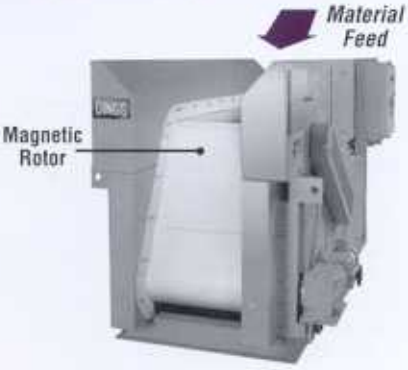
Material is fed onto the conveyor belt which moves it across the magnetic rotor where separation occurs.



Pat. No. 5,626,233

Applications: Separate, Recover, Upgrade, Purify, and Protect –
The Dings eddy current separator is ideal for recovering nonferrous metals from commingled recyclables, plastics, glass, material processed at composting or waste-to-energy facilities, automotive shredder residue, and other processed materials or minerals.

The eddy current system can be used to separate aluminum, die-cast metal, or copper from nonmetallic material. Other nonferrous metals are recoverable, as well, depending upon their alloy content and particle size. We encourage you to provide us with a representative sample of the material you wish to separate. We'll test it on an eddy current separator at the Dings laboratory and give you a confidential analysis.



Exclusive four-pulley design positions the lower pulley forward, protecting the rotor.

Larger Field, Maximum Repulsion –
The Dings full size magnetic rotor produces strong eddy currents and repelling forces for maximum separating power. Separators with an eccentric design have small diameter rotors with a narrow arc of exposure to the magnetic field. With the Dings full diameter rotor, the burden has a longer exposure to the magnetic field. This ensures maximum recovery, and is especially important for good separation of heavier pieces of nonferrous metals.

Handles More Tons On-Line – Almost all rare earth separators have a very high magnetic field strength on the surface, just above the magnetic rotor. In many models, however, the magnetic strength decreases so rapidly as you move above the surface that only very small burden depths can be processed without major losses in recovery efficiency.

In contrast, the Dings eddy current separator has high magnetic field strength at the surface and maintains enough magnetism at a distance to process deep burdens. This deep magnetic field improves the rate of recovery, directly increasing your profits.

Depending on your application, we can size and select an eddy current model to your exact specifications. Over 16 models are available which can be adapted to your specific processing system and equipment.

METAL DETECTORS AND ELECTRIC MOTOR BRAKES

In addition to a complete line of Dings magnetic separators, these products are also manufactured at the Milwaukee facility:

- **Advanced Detection Systems** – Metal detectors for ferrous and nonferrous contaminants.
- **Dings Co. Dynamics Group** – Electromagnetic disc brakes.

PROVIDING SEPARATION SOLUTIONS SINCE 1899

Dings CO.
magnetic group

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