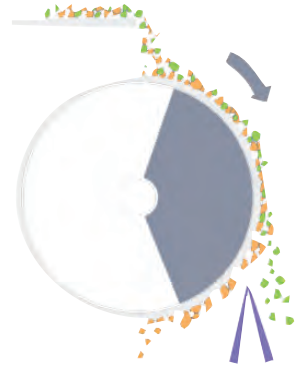


MAGNETIC DEEP DRAW DRUMS

For Heavy-Duty, High-Volume
Ferrous Separation



DEEP DRAW DRUM FOR
MATERIAL RECOVERY FACILITY



AUTOMOBILE SCRAP | C&D RECYCLING | MATERIAL RECOVERY FACILITIES
COAL PROCESSING PLANTS | FOUNDRIES | STEEL AND SLAG PROCESSING | TIRE RECYCLING

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. Its tough, weatherproof design is built for operating outdoors or in any severe-duty, dirty, or dusty environment.

This large and powerful magnetic drum has a nonmagnetic outside shell that is driven around a fixed 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 Dings standard magnetic 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 ever needed.

Permanent Magnet Outperforms Electro Models

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 a constant gauss, or magnetic strength, throughout the day.

In contrast, an electro drum loses some magnetism and separating power as the coil heats up during operation. This reduction in magnetism from startup to the operating temperature reached several hours later can be as great as 30%. The result: a drop-off in metal recovery.

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.

Dings offers a lifetime warranty on the magnet—magnetic strength is guaranteed within normal tolerances for the life of the installation.

The Deep Draw Drum emits a very powerful, even magnetic field — note the influence on iron filings at a distance of several feet.



Applications

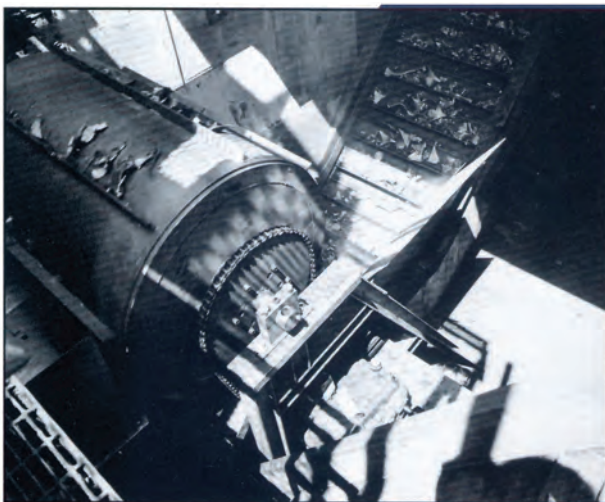
GENERAL

- Granular materials with deep burdens or high tonnage capacity
- Slag processing: reclaiming steel, or removing ferrous contaminants from slag
- Separating ferrous from deep burden of dense foundry sand
- Crushed ore
- Shredded metals
- Outdoor or severe-duty installations



Two drums provide maximum separation

Deep Draw Drums in tandem recover steel at a car shredder. The material is fed to the 42" diameter drum from a conveyor underneath. Ferrous metal separated by that drum is then directed to the 36" diameter drum for a secondary cleaning, producing very clean, saleable steel.

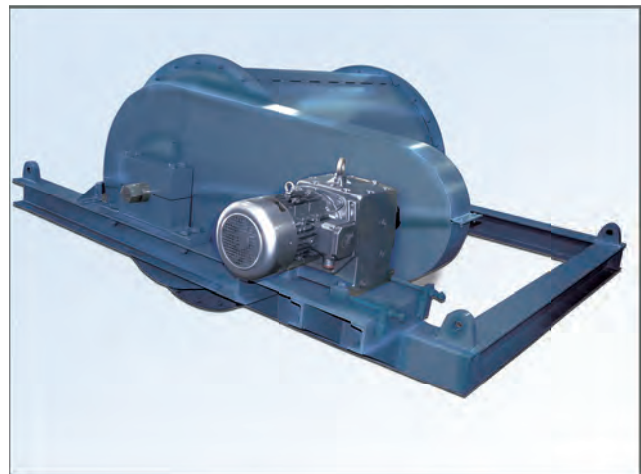


Deep Draw Drum at car shredding plant

Feed is from vibratory feeder on the left. Ferrous is carried up and over the drum and deposited on the inclined metal belt take-away conveyor on the right. The nonferrous material drops off the feeder to the left below the drum.

RECYCLING OR RECLAIMING

- Separating recoverable ferrous from mass burn ash
- Automobile scrap
- Recycling heavy items such as crushed engine blocks
- Dirty or severe-duty applications, such as recycling oil filters
- Removing high volumes of wire & steel from shredded tires
- Material recycling facilities
- Waste processing
- Construction and demolition
- Curb-side garbage



Due to long product life, rugged construction, low maintenance and low energy operating costs, drums like this one are now being used at Material Recycling Facilities.

3

Three Magnetic Arc Designs

A choice of three magnetic arc designs offers a custom fit to your application:

STANDARD DESIGN

- 150° arc radial pole design

EXTENDED ARC

- 170° arc radial pole design

The extended arc ensures the widest possible field of recovery. It has a greater length of magnetic transfer than the standard design for applications that require a longer magnetic field.

The 170° arc is often specified for mass burn and other applications where the ferrous is carried up and over the top of the drum. This method of separation ensures little or no entrapment of burned material.

FINES DESIGN

- 180° arc lateral pole design

North and south poles alternate around the arc, producing an agitating action that releases entrapped nonmagnetic material.

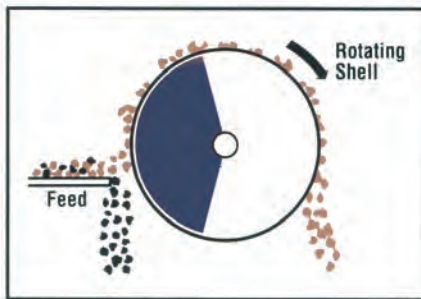
Some applications, such as slag fines, use a top feed arrangement because maximum separating strength is required. Although this feed position can entrap some nonmagnetic material, the agitating pole design minimizes this and produces a clean ferrous product. It's also used for material with high ferrous content, such as tire recycling.



The magnet adjusting arm is used to position the magnetic arc after installation to match the feeder location. In addition, the arm can also be used to rotate the magnetic field to another position if work needs to be done near the magnet.

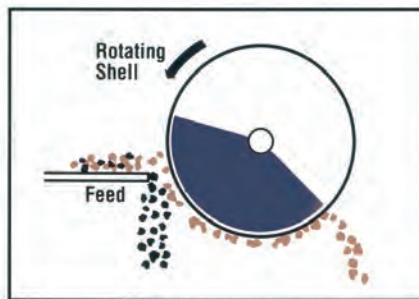
Feed Arrangements

The Deep Draw Drum can be fed in any position since the internal magnet assembly is adjustable. The drum is easy to install on general contractor I beams. After mounting, the magnet arc is adjusted to match the feed location. Feed position can affect the purity of the recovered steel. In the top feed position, for instance, ferrous attracted to the drum can entrap nonmetallic material against the drum shell, with both being deposited on the ferrous side of the splitter.



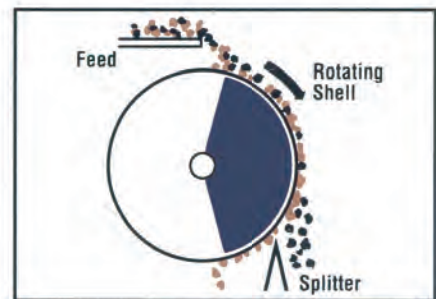
UP-AND-OVER FEED

Ferrous is lifted out of the burden and carried up and over the magnet while the nonferrous material drops off the feeder. Commonly used for mass burn ash handling, auto shredding, and other applications with high ferrous content, this feed arrangement minimizes the amount of entrapped nonferrous material and produces a clean ferrous product.



DOWN-AND-UNDER FEED

This arrangement has the shortest and most direct transfer area for the ferrous, and is often recommended for material with large and heavy pieces of ferrous.



TOP FEED

Commonly used for slag processing, this arrangement is not as effective as the two other feed positions for obtaining maximum ferrous purity. Often used with ferrous material that is weakly magnetic, or with feed that contains nonferrous pieces too large to pass through a reasonable gap setting.

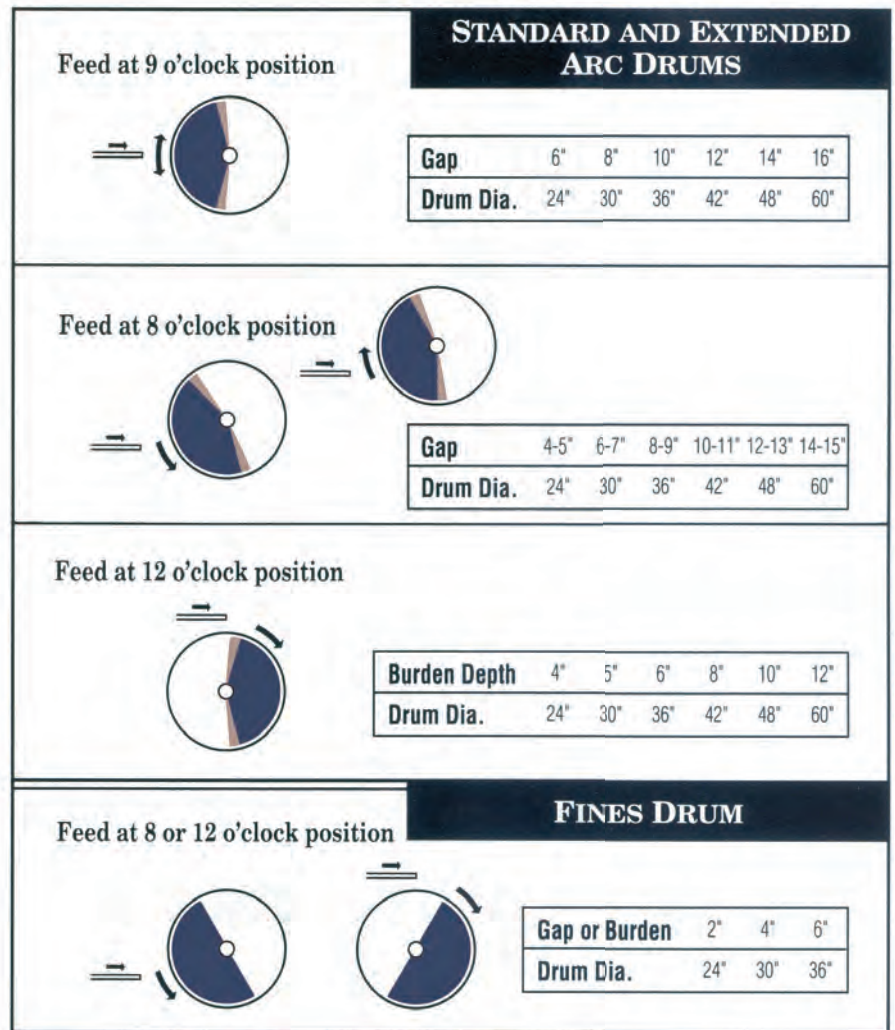
Size Selection

Peak performance depends on a number of factors, including the position of the magnet arc, particle or lump size of the material, the rate of feed and how constant the rate is kept, the distance or gap between the feeder and drum surface, and whether the feeder trough is made of nonmagnetic material.

The magnetic strength of the drum is determined by the diameter; the larger the drum diameter and width, the greater the volume of material which can be handled.

The selection chart shows recommended drum diameters based on the gap distance, magnet arc, and feed position. The type and size of the material are also considered in determining the capacity and drum diameter.

Feeder and drum positions may vary from the recommended locations shown due to physical restrictions at the job site. The magnet arc should then be adjusted accordingly, to produce the best separation possible.



Models Available

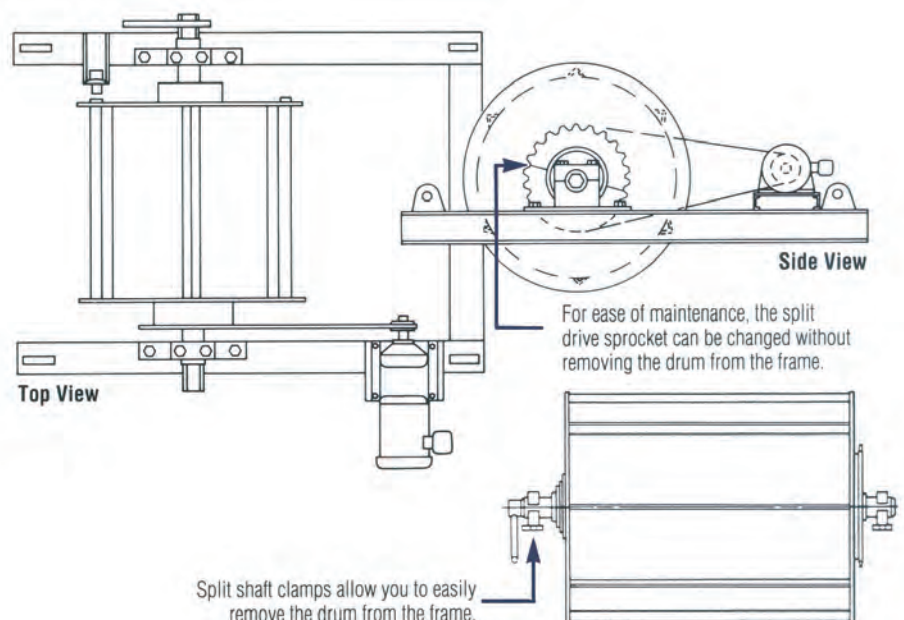
Deep Draw Drums can be specified in sizes to fit almost any application. Dings has manufactured drums up to 6 feet in diameter, weighing over 10 tons, to handle the largest jobs.

DRUM ONLY

- Includes two shaft clamps and a magnet arc adjusting arm
- Standard diameter: 24" through 60"
- Width: 24" through 84". Drum width can be same as feed width due to Dings exclusive flux control design.

DRUM WITH STANDARD FRAME AND DRIVE

- Furnished with drive components
- Horizontal structural steel support frame



Only Dings Has Flux Control

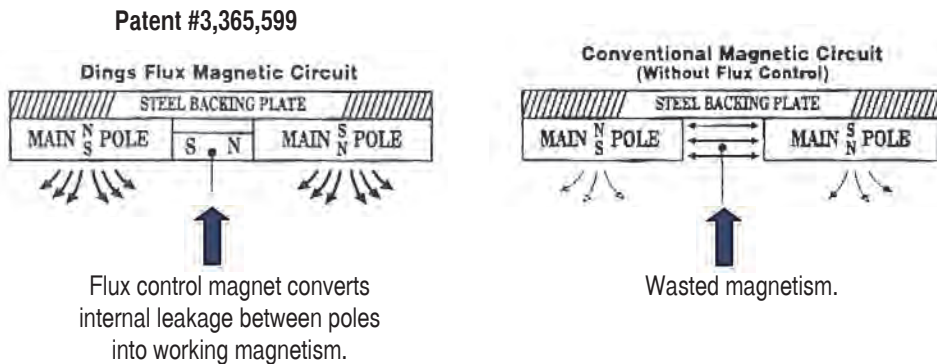
PATENTED CIRCUIT PROVIDES STRONGER, MORE UNIFORM MAGNETIC FIELD

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.

FLUX CONTROL INCREASES EFFICIENCY

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.

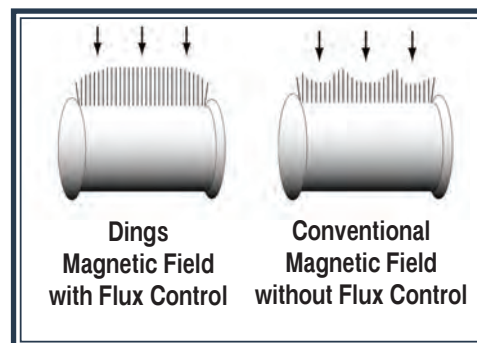
Blocking magnets are strategically positioned in spaces between magnetic poles, where there would normally be air or filler material. These blocks control the flux by redirecting the leakage, which is wasted magnetism in conventional circuits. Nearly 100% of generated flux is converted to working force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



UNIFORM FIELD IMPROVES PERFORMANCE

In addition to increasing the magnetic strength of Dings drums, this exclusive circuit design produces a very uniform magnetic field. There are no dead spots or dips across the entire width of the drum.

In contrast, electro drums and permanent drums without flux control have a nonuniform field. There are peaks and valleys in the magnetism, with the greatest concentration near the center. An uneven field can cause entrapment of nonmagnetic material in the center and also loss of ferrous metals in the low strength areas. If the drum is being used to produce clean, saleable ferrous, entrapped material can mean a loss of revenue.



Flux control produces a far more efficient magnetic field pattern.

Specifications

Magnetic drum assembly

- Nonelectric design
- Shell speed: 200-250 FPM
- Standard diameters: 24", 30", 36", 42", 48" and 60"
- Widths; 24"-84"

Magnet:

- Ceramic VIII magnetic material, highest grade of ceramic available. Completely encapsulated inside stainless steel.
- Choice of magnet arc designs: standard —150° radial pole; optional — 170° extended arc radial pole or fines design with 180° lateral agitating pole.
- Patented flux control magnetic circuit with magnetic field pattern as shown on p. 5.
- Lifetime warranty: magnetic strength is guaranteed within normal tolerances for the life of the installation.

Drum shell:

- Nonmagnetic 304 stainless steel revolving shell.
- Replaceable manganese steel wear cover with manganese or stainless steel cleats (Option: additional or custom designed cleats.)
- Mild steel heads. (Option: stainless steel heads.)
- Split drive sprocket mounted on head. (Option: multi-grooved sheave.)
- Heavy duty ball or roller bearings in heads are self-aligning and sealed.
- Two supporting split shaft clamps.
- Magnet adjusting arm. Magnet can be rotated counterclockwise or clockwise to adjust magnetic arc position.
- Weatherproof, dust-tight construction.
- Option: special paint

Drum with frame and drive

Includes magnetic drum assembly, standard frame, and drive components, all sized to the application.

Frame:

- Horizontal structural steel support frame.
- Four support lugs are furnished on the frame for a suspended installation.
- Options: motion sensor; winch mounted on frame to adjust magnetic arc; custom frame designs.

Drive components:

- TEFC gearmotor
- Motor speed, drum sprocket, and motor sprocket are matched to produce the correct rotational speed for the drum diameter.
- Fabricated sheet metal guards.
- Rollerchain.



Dings Design Produces Substantial Cost Savings

MINIMAL OPERATING COSTS AND MAINTENANCE

Since the magnet in the Deep Draw Drum is nonelectric, it costs nothing to operate. The permanent design also eliminates expensive downtime, since there are no electro coils to burn out and no rectifier, generator, or switch gear which may require service. Moisture inside an electro drum can cause electrical problems; a Deep Draw Drum is so resistant to moisture that it can operate in a wet environment, and can even be hosed down.

No cooling oil is required, which means there's no need to monitor the level, add oil, or check for leaks.

The only maintenance needed on the Deep Draw Drum is periodic lubrication of the bearings.

The wear cover on an electro magnet is subject to uneven use and may need to be replaced more often. Since the magnetic field is nonuniform, contacts against the wear cover are concentrated in narrow bands that correspond to the poles of magnetism. These bands become areas of accelerated wear on the electro drums, causing more frequent replacement.

NARROWER, LESS EXPENSIVE WIDTH CAN BE USED

The uniform field on a Dings drum allows it to be sized more efficiently for significant cost savings. A Dings magnetic drum with flux control can have a narrower face, identical to the width of the feeder. An electro drum or permanent drum without

flux control must be considerably wider than the feeder because of low magnetic strength near each end. Consequently, a larger investment is required for such a drum compared to the narrower flux control drum.

PROVIDING SEPARATION SOLUTIONS SINCE 1899

Dings Co. manufactures a full line of magnetic separators for ferrous and nonferrous metals, including rare earth eddy current separators for recovering aluminum.

To help you with your application, Dings Co. has sales engineers located at our manufacturing facility as well as local representatives throughout the U.S. and Canada. They can select and size a Dings magnet to your exact requirements.

Contact us to discuss your application



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