

Magnetic Separation in **CHEMICAL INDUSTRY**



MAGNETIC SEPARATION IN CHEMICAL INDUSTRIES



Our Magnetic Separators meet the demanding standards stipulated by chemical companies both in terms of product performance, reliability and quality. Our separation systems are widely in extracting fine ferrous particles from powdered chemicals, pellet chemicals, tablets or pastes.

Key Installation points in Chemical Processing

Our magnetic separators can be used anywhere in the process where a potential contamination risk exists. This could be at raw material intake, purification, preparation, by-product extraction or bulk discharge, typical locations include :

- Gravity fed chutes
- Pre & post sifting
- Bulk tanker discharge
- Pre and post mixers
- Vacuum /pneumatically fed lines
- Sack rip and tip stations
- Paste mixing
- Packaged product conveying

We are supplying to some of the leading players in the chemical industry such as BASF, Clariant Chemicals, Reliance Industries , Sudarshan Chemicals, Bayer Cropscience, Neelikon, Atul limited, Synthite,etc



Permag Product Pvt. Ltd.
Manufacturers of Magnetic Equipments



Call Us
+91 9552509884



Email Us
ho@permagproducts.com



PERMAG’s magnetic rods are a simple low-cost form of magnetic separation. Thanks to the software aided designs, PERMAG magnetic rods achieve the optimum balance between magnetic strength and holding force.

These rods can be mounted individually, side by side or in multiple row allays.

Our magnetic rods are majorly used in food, pharma, dairy, chemical and plastic processing industry.

We manufacture magnetic rods specifically to the length requested by the customers.

HOW IT WORKS

- > PERMAG’s magnetic rods are built with very high power RE magnets assembled in SS 304 / 316 tubes. 1” diameter magnetic tubes are designed to create an extremely effective magnetic circuit. These magnetic rods are to be used in gravity free-fall magnetic separation applications. All the ferrous particles like bolts, nuts, chips, damaging tramp iron can be caught and held effectively.
- > PERMAG’s magnetic rods have smooth surface that is easy to clean. Depending on configuration, rod magnets can be cleaned in seconds by simply pushing the attracted contamination to one end, this will release any attracted contamination.

ADVANTAGES

- Removes very fine ferrous contaminants from bulk material.
- Reduction in downtime and increased productivity
- Removal of Fe content extends life of machines.

TECHNICAL DATA SHEET

- ➔ Magnet Gauss – 3000, 6000, 8000, 10000, 12000 Gauss Powers, variant available in magnetic gauss as per requirement
- ➔ Magnet Used – Nd-fe-b (Rare Earth)
- ➔ Grade – N 52M (Highest Grade)
- ➔ Food grade and sanitary finish available
- ➔ 304 / 316 Stainless Steel is available for corrosive environments

FEATURES

- ▶ 304 / 316 stainless steel, all welded rugged construction
- ▶ Very powerful high grade N52M rare earth magnets
- ▶ Available in 3000, 6000, 8000, 10000, 12000 gauss powers
- ▶ Working temperature grade: 80, 100, 120, 150 degree Celsius
- ▶ Easy to install and zero maintenance required
- ▶ Remove metal upto 30 microns
- ▶ High filtration efficiency
- ▶ Easy to clean
- ▶ Custom size in length & diameter available



PERMAG's Magnetic Grills offers powerful magnetic separation suitable for mechanical and gravity flow applications in all industries. Magnetic Grills can be installed or simply laid inside hoppers, pits, chutes, housings, and bins, where they can be easily accessed for cleaning.

Magnetic Grills filter very fine ferrous contaminants from free-flowing powders and granulates. Permags' designs offer maximum capture, control and protection of equipment while improving product purity. Magnetic Grills are most effective when the product is dry, free flowing and does not bridge between the magnetic tubes.

HOW IT WORKS

- PERMAG's Magnetic Grills are built with very high power RE Magnetic cartridges fitted in SS Frame with 1" diameter magnetic tubes designed to create an extremely effective magnetic circuit. These Magnetic Grills can be placed directly in the product stream allowing free flowing products to come in direct contact with the magnetic grills.
- Cleaning is achieved by removing the Magnetic grill from its process and push the contamination towards non-magnetic area of each rods. This will release the majority of all attracted contamination.

ADVANTAGES

- Magnetic flux circuit geometry ensures the controlled build-up of contamination which reduces bridging or choking of product stream
- Removal of Fe content extends life of machines
- Drastic reduction in bypass of ferrous particle through magnetic grills
- Reduce downtime and increase productivity

TECHNICAL DATA SHEET

- ➔ Magnet Gauss – 11500 To 12000 Gauss variant available in magnetic gauss as per requirement
- ➔ Magnet Used – Nd-fe-b (Rare Earth)
- ➔ Grade – N 52M (Highest Grade)
- ➔ Food grade & sanitary finish available
- ➔ Available in round, half round, square & rectangular size
- ➔ 304 / 316 stainless steel is available for corrosive environments
- ➔ 1" Dia magnetic tubes fitted in SS frames

FEATURES

- ▶ 304 / 316 stainless steel, all welded rugged construction
- ▶ Available in round , square , rectangular size
- ▶ Very powerful high grade N52M rare earth magnets
- ▶ Available In 12000 Gauss
- ▶ Can withstand upto 100°C
- ▶ Easy to install & zero maintenance required
- ▶ Remove metal upto 30 microns
- ▶ High filtration efficiency
- ▶ Easy to clean
- ▶ Custom size in length & width available



PERMAG's High Power liquid line Magnetic “T” Traps & Filters have been designed to operate in pressurized transfer lines to provide protection against ferrous and para-magnetic contamination.

It is an important part to remove medium and fine ferrous containments from liquid lines and slurries. PERMAG Magnetic Traps / Filters are made to be placed at critical points to remove metal contamination from product streams and guarantee the product quality and prevent damage to machines.

Magnetic Filters have an extremely powerful magnetic field. They are therefore best suited for filtering small ferrous contaminants as small as 30µm. Permagan use very powerful neodymium magnets as standard in our filters which withstand up to 100°C max.

HOW IT WORKS

- The Magnetic “T” Trap / Filters with very strong RE magnetic rods is positioned in the middle of the product flow. The product with ferrous contaminants passes several magnetic rods while flowing through the Traps / Filters.
- The magnetic rods attract the ferrous contaminants. The captured particles stick to the magnetic rods while the purified product flows further.
- For cleaning unlatch the wing nut / clamp and remove top lid having magnetic rods, simply wipe the ferrous contamination magnetic on rods using a clean cloth until its clean and relatch the top lid. Whole cleaning process takes 3-5 minutes.

TECHNICAL DATA SHEET

- ➔ Magnetic Strength – 11500 To 12000 gauss variants available in magnetic gauss as per requirement.
- ➔ Magnet used – Nd-fe-b (Rare Earth)
- ➔ Grade – N 52M (Highest Grade)
- ➔ MOC – SS 304 / SS 316
- ➔ Surface finish – mirror / glass bead
- ➔ Inlet / outlet connection - flange , TC clamp , SMS union
- ➔ High grade FDA approved gaskets
- ➔ Heavy duty SS wing nuts , V band clamps for locking

FEATURES

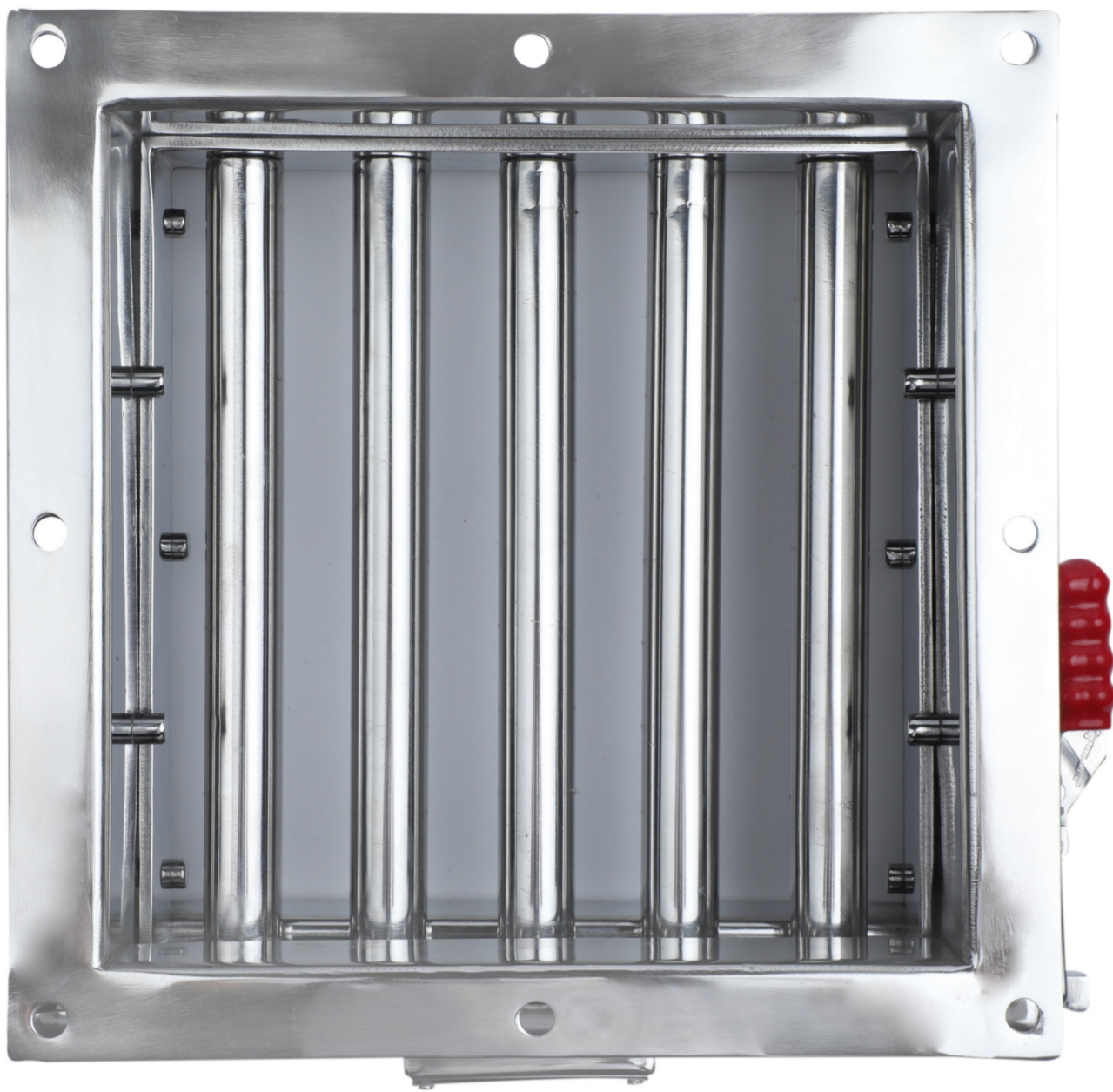
- ▶ 304 / 316 stainless steel, all welded rugged construction
- ▶ Very powerful high grade N52M rare earth magnets
- ▶ Available in 3000, 6000, 8000, 10000, 12000 gauss powers
- ▶ Working temperature grade: 80, 100, 120, 150 degree celsius
- ▶ Easy to install and zero maintenance required
- ▶ Remove metal upto 30 microns
- ▶ High filtration efficiency
- ▶ Easy to clean
- ▶ Custom size in length & diameter available



ADVANTAGES

- Drastic reduction in bypass of ferrous particle through magnetic traps.
- Magnetic flux circuit geometry ensures the controlled build-up of contamination which reduces bridging or choking of product stream.
- Removal of iron content extends life of machines.
- Reduce downtime and increase productivity.
- Suitable for all locations – vertical , horizontal, angled

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PERMAG's Drawer Type Magnetic Separator provides powerful magnetic separation suitable for mechanical and gravity flow applications in all industries. It is an important part to remove medium and fine ferrous containments from dry, free flowing products under gravity flow.

PERMAG's Magnetic Separators are made to be placed at critical points to remove metal contamination from product streams and guarantee the product quality and prevent damage to machines. Drawer Type Magnetic Separators are equipped with high-power magnetic cartridges, configured with arrangements of two or more cartridge trays that are staggered to increase contact with the product stream. Material moves in a zig-zag pattern from one cartridge tray to the next, to maximize removal of iron contamination

HOW IT WORKS

- PERMAG's Drawer Type Magnetic Separators are built with very high power RE Magnetic cartridges fitted in SS housing. 1" diameter magnetic tubes are designed to create an extremely effective magnetic circuit. These cartridges are mounted in the middle of the free-fall pipeline, they are located in the centre of the product stream. This ensures that the product always passes very close to one or more magnets and prevent bridging or choking of the product stream.
- The hinged door can be quickly unlatched and opened to allow quick removal and cleaning of each magnetic drawer.

CLEANING

- PERMAG's Drawer Type Magnetic Separators are available in Manual Cleaning and Easy Cleaning models. The Manual Cleaning design has additional non-magnetic area given at the back side of magnetic rods which helps in cleaning / wiping of trapped iron while cleaning manually.
- Easy Cleaning arrangement Magnetic cartridges are enclosed in extractor tubes which eliminate the need for manual wiping. This makes cleaning simpler, by pulling individual magnetic rods out of the extractor tubes, the captured metal contamination falls off the rods itself.

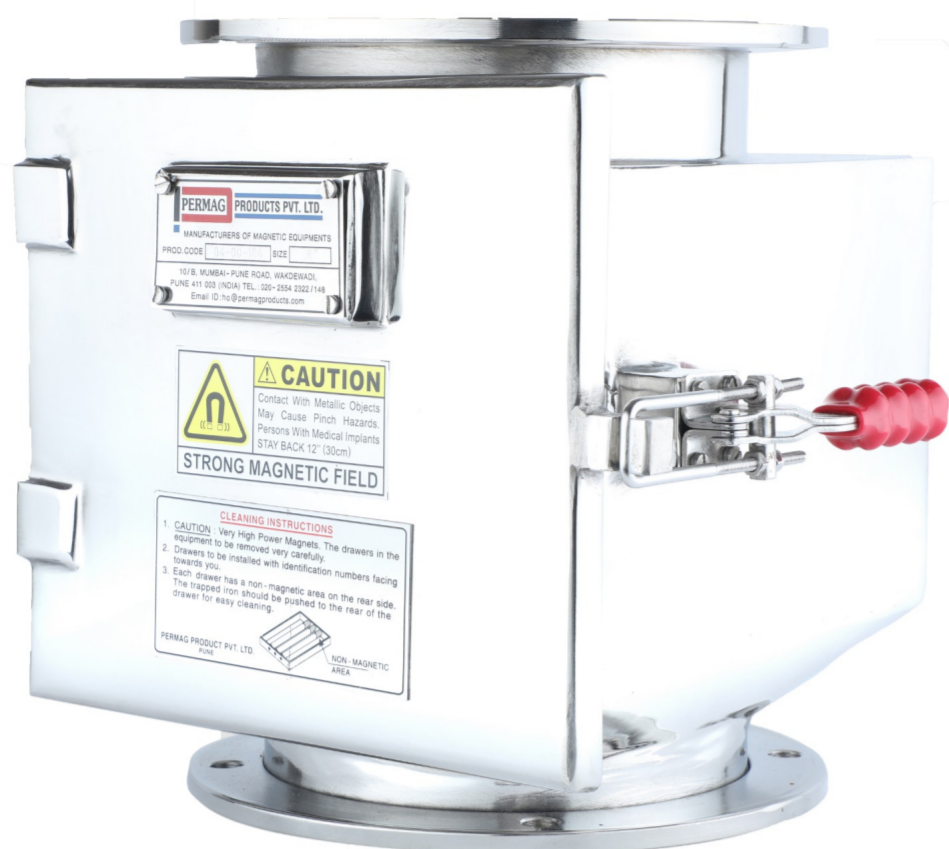
FEATURES

- ▶ 304 / 316 stainless steel, all welded rugged construction
- ▶ Very powerful high grade N52M rare earth magnets
- ▶ Available in 12000 gauss
- ▶ Can withstand upto 100°C
- ▶ Easy to install
- ▶ Zero maintenance required
- ▶ Remove metal upto 30 microns
- ▶ High filtration efficiency
- ▶ Easy to clean
- ▶ Custom inlet / outlet & size available

DRAWER TYPE MAGNETIC SEPARATOR

Magnetic Separation in Chemical Industry

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ADVANTAGES

- Drastic reduction in bypass of ferrous particle through magnetic separator
- Removal of iron content extends life of machines
- Reduce downtime and increase productivity
- Magnetic flux circuit geometry ensures the controlled build-up of contamination which reduces bridging or chocking of product stream

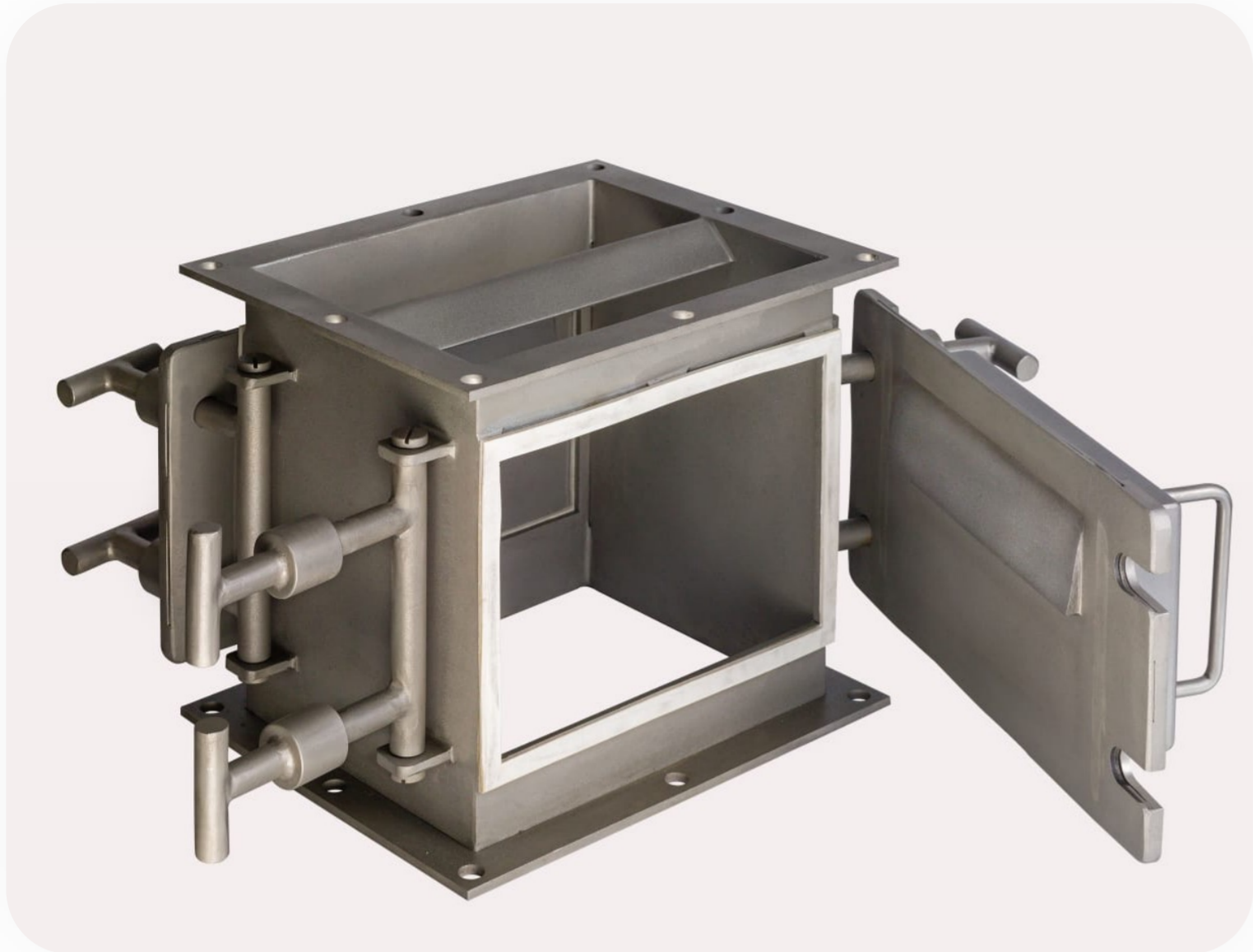
TECHNICAL DATA SHEET

- Magnetic strength – 11500 To 12000 Gauss. Variants available in magnetic gauss as per requirement
- Magnet used – Nd-fe-b (Rare Earth)
- Grade – N 52M (Highest Grade)
- Temperature – Up To 100°C (magnets available as per requirement for high temperature)
- MOC – SS 304 / SS 316
- Surface finish – mirror / glass bead
- Inlet / outlet connection – flange , TC clamp
- High grade FDA approved gaskets
- Heavy Duty SS toggle clamps for locking

HEAVY POWER DEEP REACH SEPARATOR

Magnetic Separation in Chemical Industry

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PERMAG'S Deep-reach separators use a plate-magnet-style circuit consisting of a housing and two opposing Plate Magnets.

A center diverter on the housing inlet helps direct product towards the magnets.

It works well when sticky products do not readily flow down and ideally suited for products that would bridge or choke in a magnetic cartridge type separator.

HOW IT WORKS

- Heavy flows of material that may bridge or choke when processed through magnetic grates are easily handled by this open-throat design, while maintaining production rates. Ideal for use with powdery, lumpy or moist materials when large tramp metal like nuts or bolts threaten production or product purity.

ADVANTAGES

- Protect processing machinery from being damaged
- Reduces maintenance costs
- Compact design fits easily into limited spaces as compared to single plate model
- Ensures metal free product
- Saves energy consumption
- Reduces downtime and increases productivity

APPLICATION

- ➔ Food Processing
- ➔ Pharmaceutical Industries
- ➔ Chemical Industry
- ➔ Dairy Industries
- ➔ Paper Industries
- ➔ Plastic Industries

FEATURES

- ▶ Easy handling by this open-throat design, while maintaining production rates
- ▶ Hinged magnets can be opened easily for cleaning
- ▶ Customized design available in round, square, or rectangular size
- ▶ High durability
- ▶ Magnetic plates with 11000 Gauss
- ▶ This design is heavy duty and in rigid construction
- ▶ Complete structure is in SS 304 3mm thickness



Permagon Pvt. Ltd.
Manufacturers of Magnetic Equipments

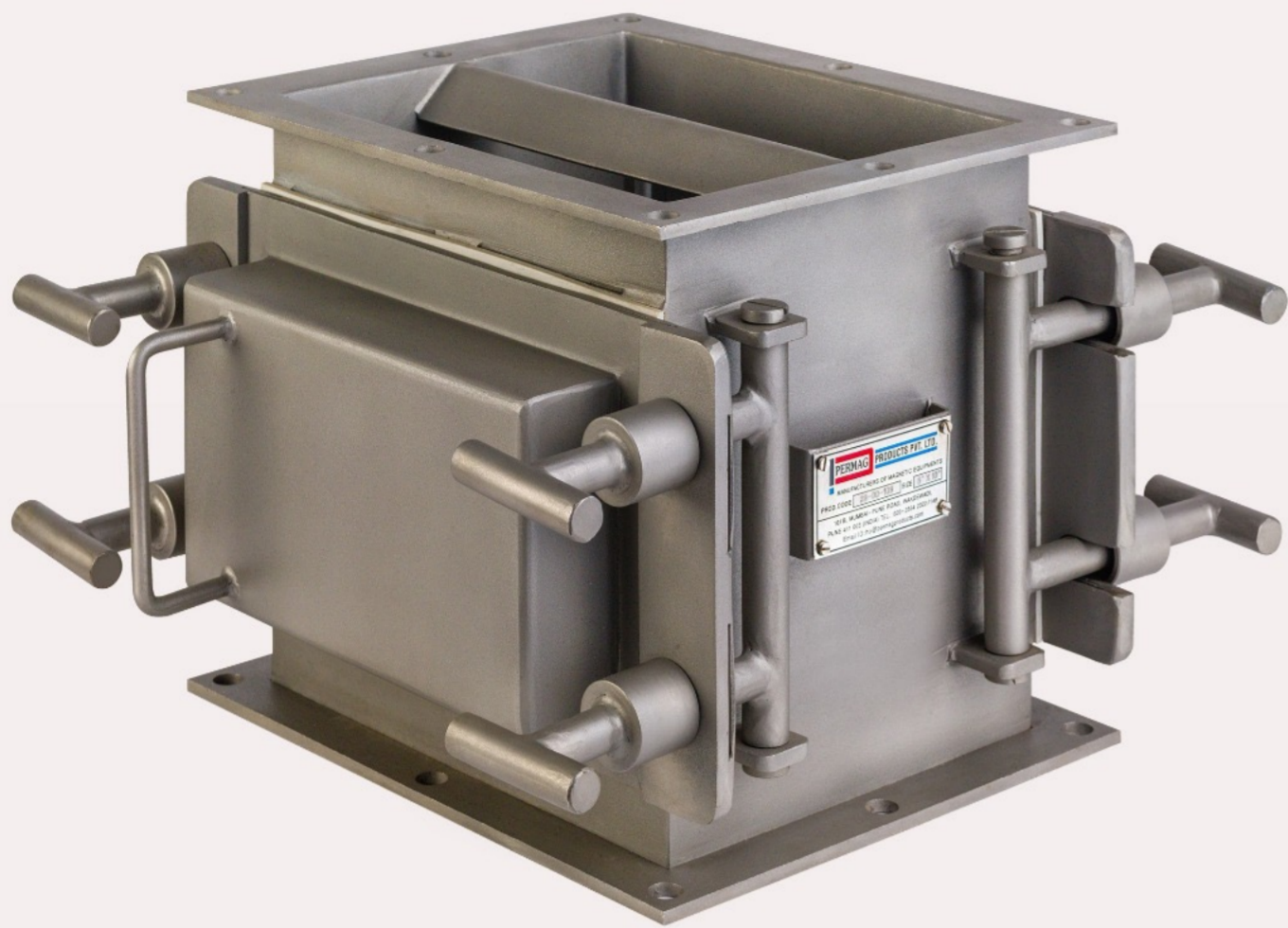
Call Us
+91 9552509884

Email Us
ho@permagonproducts.com

HEAVY POWER DEEP REACH SEPARATOR

Magnetic Separation in Chemical Industry

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TECHNICAL DATA SHEET

- Magnet Gauss – 10000 To 12000 Gauss, variant available in magnetic gauss as per requirement
- Magnet Used – Nd-fe-b (Rare Earth) Grade – N 52M (Highest Grade)
- Temperature – Up To 100°C (Higher Temperature version available)
- MOC – MS / SS
- Surface finish – glass bead



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Manufacturers of Magnetic Equipments



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+91 9552509884



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ho@permagproducts.com



PERMAG Heavy Power plate magnets provides excellent equipment and product protection of medium and fine ferrous contaminants in recycling, quarrying and heavy industries.

PERMAG’s Plate magnets work efficiently to capture fine metal particles & slightly magnetic debris from powdery, moist or abrasive materials that might choke or wear cartridge based separators. These plate magnets can be used in a wide range of industries and are commonly install easily in chute, above conveyors or below conveyor drive pulleys to capture contaminants as material drops from open belts.

HOW IT WORKS

- > Plate Magnets can easily be installed in the existing installations. It can be hanged / suspended over a conveyor belt, attached to the wall of a product channel, or can be mounted under a passing product stream.
- > These plate magnets are supplied complete with sanitary hinges, latches, and mounting hardware.

ADVANTAGES

- Protect processing machinery from being damaged
- Ensures metal free product
- Saves energy consumption
- Reduce maintenance costs & saves energy consumption
- Reduce downtime and increase productivity

TECHNICAL DATA SHEET

- Magnet Gauss – 10000 To 12000 Gauss, variant available in magnetic gauss as per requirement.
- Magnet Used – Nd-fe-b (Rare Earth)
- Grade – N 52M (Highest Grade)
- Temperature – Up To 100°C (Higher Temperature version available)
- MOC – MS / SS
- Surface Finish – Glass Bead
- Heavy duty hinges, latches, and mounting hardware

FEATURES

- ▶ Maximum reach out and control designs for effective removal of ferrous contaminants
- ▶ Heavy duty latches, hinges and handle for easy installation and maintenance
- ▶ All welded construction for rugged use
- ▶ Custom sizes, designs, and mounting available
- ▶ Various magnetic strengths to choose from
- ▶ Mild or stainless steel welded construction

HEAVY POWER BULLET MAGNET

Magnetic Separation in Chemical Industry

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PERMAG's Bullet Magnet are specifically designed with an aerodynamic shape which allows this equipment to remove maximum ferrous contamination in pneumatic lines without obstructing the flow.

Housed bullet magnets are ideal for the removal of tramp type contamination, for example nuts, bolts, staples etc., from gravity and pneumatically conveyed pipelines. A high intensity magnetic bullet element is centrally mounted within a stainless steel housing.

The design ensures that product flow is unaffected by the magnetic element.

HOW IT WORKS

- > The nose cone bullet diverts the material around the cylindrical magnet where it passes through the magnetic field and ferrous contaminants are drawn to the magnetic surface. This magnet is very well suitable for dry and semi dry powders, granulates and lumps.
- > The bullet magnet can be cleaned by hand. Simply release the door securing toggle clamps and open the door to gain access to the bullet element. All attracted contamination can now be removed.

ADVANTAGES

- Protect processing machinery from being damaged
- Reduces maintenance costs & saves energy consumption
- Ensures metal free product
- Reduces downtime and increases productivity

TECHNICAL DATA SHEET

- Magnet Gauss – 6000 to 10000, variant available in magnetic gauss as per requirement
- Magnet Used – Nd-fe-b (Rare Earth)
- Grade – N 52M (Highest Grade)
- Food grade and sanitary finish available
- Available in flange, SMS union Or TC clamp connection
- 304 / 316 stainless steel is available for corrosive environments

FEATURES

- ▶ Finely polished and good welding to meet food grade
- ▶ Heavy duty latches for easy installation and maintenance
- ▶ Highly effective and consistent performance
- ▶ Hygienic sealed quick release door
- ▶ Available in SS 304 / 316 housing
- ▶ Available with powerful rare earth magnets
- ▶ Customized sizes available as per customer's requirement
- ▶ Easy to inspect



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Call Us
+91 9552509884

Email Us
ho@permagproducts.com



PERMAG's On/Off type Magnetic stick is a very high grade, high strength magnet used for testing and analyzing food product samples and metal detector rejects for metal fragments in both dry and wet products.

The powerful 10,000+ gauss magnet strength enables the laboratory test magnet to effectively collect and retain weakly magnetic fragments and stone particles.

FEATURES

- ▶ Detecting magnetic contamination in flour, ingredients and liquid foods
- ▶ Probe or suspend into products
- ▶ Test if a substance is magnetic
- ▶ Locate magnetic fragments rejected by metal detectors
- ▶ Concentration on magnetics for interpretation

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PERMAG's Rare Earth Magnetic Roll Separator provides a unique inclined belt feeding system to maximize overall performance and efficiency.

The design of the magnetic rolls ensures the optimum combination of magnetic field strength and magnetic gradient to give the most effective separation.

FEATURES

- ▶ Provides an alternative in handling a wide variety of materials which do not respond well to traditional methods of processing
- ▶ Can recover particles with a wide range of magnetic susceptibility and particle size up to minus 325 mesh
- ▶ 3" and 4" diameter rolls and width ranging from 5" to 60" long
- ▶ Cantilever design which allows for quick belt replacement by a single operator.
- ▶ Standard models include single, double, and triple stage machines
- ▶ High strength neodymium-boron-iron permanent magnets
- ▶ Multiple separation stages available on one separator
- ▶ Kevlar feed belt. Positive belt tracking features
- ▶ Mounted vibratory feeder with control to provide consistent feed rate to the magnetic roll
- ▶ Variable speed drive. Feed belt speeds up to 250 fpm using a variable frequency control
- ▶ All stainless steel construction
- ▶ Wide range splitter to segregate magnetics and non-magnetics
- ▶ Flanged magnetic and non-magnetic product discharge chutes
- ▶ Dust tight housing available
- ▶ High temperature magnets available

CUSTOMERS ACROSS THE GLOBE



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Manufacturers of Magnetic Equipments

Call Us
+91 9552509884

Email Us
ho@permagproducts.com