

Ceramics Processing Industry Guide



The production of fine, white ceramics requires the removal of iron contamination from the raw materials.

HIGH INTENSITY FILTERS

Filters incorporate a powerful electro magnetic coil, which surrounds a matrix.

The filter is used for the continuous separation of fine paramagnetic contamination from raw ceramic material slips and glazes.

Filters can be designed to produce very high gauss intensities within the matrix for extremely high purity separation. Electro filters are fitted with self cleaning auto backflush systems for continuous operation with adjustable magnetic cleaning cycle.



WIRE WRAP HIGH INTENSITY DRUM MAGNET

Constructed in the same way as a Rare Earth Drum Separator, the Wire Wrap Drum Magnet utilises a Neodymium Iron Boron magnet system, however the outer drum cover is wire wrapped in a unique way, which results in a much enhanced magnetic intensity on the drum surface. This is ideal for free flowing powder applications where the ferrous particles are very small or paramagnetic, such as quartz, fine sand, or ceramic powder processing.



INDUCED ROLL SEPARATORS

High capacity separators for the concentration of finely sized paramagnetic ores and for the purification of non-metallic minerals.

Induced Roll Separators utilise the magnetic induction of rolls via powerful electromagnets to treat a variety of feed material. Single and multiroll arrangements are available, giving both the magnetic and non-magnetic fractions a 'double pass' for optimum purity.



RARE EARTH DRUMS

Constructed with a core of Neodymium Iron Boron.

Rare Earth Drums are used where extremely high magnetic intensities are required on the face of the drum. Suitable for the treatment of fine ferromagnetic and paramagnetic materials.

Rare Earth Drums can be fitted into totally closed housings where product must be kept free from external contamination. The drums can also be supplied with Vibratory Feeders to ensure an even spread of material is presented to the drum surface.



MASTERROLL RARE EARTH ROLLS

Powerful Neodymium Iron Boron (Rare Earth) magnetic rolls suitable for the processing of fine powders.

Masterrolls are available in single, double or triple roll configurations with auto belt tracking, enclosed guarding and variable speed belts and rolls.

Applications include the removal of paramagnetic particles from quartz, feldspar and other dry ceramic minerals.



MASTERTRAP SEPARATORS

The Mastertrap is a permanent magnetic separator for the extraction of fine iron from wet or viscous product conveyed by pipeline.

Incorporating a series of high intensity rare earth tubes, the unit is installed into existing pipelines as an effective means of magnetic protection.

Manufactured from stainless steel complete with flanges or threaded ends and available with water jacket for temperature regulation.



Bunting manufacture a comprehensive range of magnetic separation equipment separate tramp and fine iron from the product. Iron contamination can be naturally present in raw material or can be introduced through the process lines.

The Bunting range of separators below can be installed at several points in the process over conveyors and chutes, through pipelines and in the final stages of pre-firing production.

GRID MAGNETS

Comprising of high-intensity rare earth magnetic tubes, magnetic grids are single or multibank racks for installations in hoppers, chutes and ducts.

Grids are available in a range of housings, with drawer openings for easy cleaning, or as self cleaning pneumatic units. Single Tubes are also available for product testing.

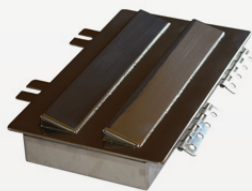


PLATE MAGNETS

Plate Magnets are an inexpensive form of magnetic protection against occasional tramp iron contamination.

Available in a range of housings and with Ferrite or high intensity Rare Earth magnetic material.

Plate Magnets can be configured into 'Deep Reach' or 'Diagonal Leg' housings for deeper product burdens.

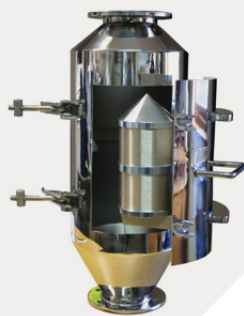


BULLET MAGNETS

The Bullet separator is a permanent magnetic separator for use in gravity feed and pressurised pipeline systems.

Material flows over the internal "bullet" system, with any extracted tramp iron being held firmly in place, whilst clean product flows undisturbed.

The Bullet Magnet is available with a high intensity rare earth magnetic system for fine iron removal or can be supplied with a Ferrite magnet system for general tramp metals.



METAL DETECTORS AND VIBRATORY FEEDERS

To complement the range of magnetic separators, Bunting offers a full range of metal detectors and vibratory feeders.

For the transportation and feeding of materials, vibratory feeders can be supplied as single units or integrated into magnetic separators.

Where extremely high product purity is required, Bunting also offers a range of high sensitivity metal detectors as additional protection against metal contamination.

SUSPENSION MAGNETS

Suspension Magnets are designed for the extraction of occasional tramp iron from deep product burdens.

Depending on the application requirements, the Mastermag Suspension Magnets are available with permanent magnet systems or can be supplied with an air or oil cooled electro magnet system.



OVERBAND MAGNETS

Overband Magnets allow the continuous separation of general tramp iron from raw ceramic product.

The unit comprises of either a permanent or electromagnetic core, with a revolving self-cleaning belt, ensuring low maintenance operation.



PULLEY MAGNETS

Installed as the head pulley in belt conveyors for the continuous extraction of iron contamination.

Magnetic Head Pulleys are designed for removing tramp ferrous metals from shallow burden depths of feed material.

The 360° magnet system retains extracted iron, discharging it behind the centre line of the pulley, whilst clean product follows its natural trajectory.



X-RAY FLUORESCENCE ANALYSIS (XRF)

X-ray fluorescence (XRF) is the emission of characteristic secondary (or fluorescent) X-rays from a material that has been excited by being bombarded with high-energy X-rays or gamma rays. The phenomenon is widely used for elemental analysis and chemical analysis, particularly in the investigation of minerals, metals, glass, ceramics, and building materials.

At our Bunting – Redditch test facility we can provide comprehensive chemical analysis of metal, mineral and soil samples by identifying elements such as Mg, Al, Si, P, S, Fe. It is also capable of precious metal and rare earth element analysis. This enables our technicians to make detailed and accurate recommendations on magnetic separation requirements and propose process flowsheet options to the customer.



LABORATORY SAMPLE TESTING SERVICE

To arrive at the best separation criteria, Bunting uses a fully equipped laboratory for material testing to ensure optimum equipment selection. Customers are invited to submit samples for testing and evaluation, to ensure that separation performance can be measured, with all the results and process recommendations being submitted for the client's approval. Initial trials are normally carried out free of charge and customers are encouraged, if practicable, to participate in the testing and processing procedure.

In addition, Bunting have an established a working association with the Centre for Critical and Strategic Metals at the University of Birmingham. This link provides access to an extensive range of mineral processing and recycling facilities and additional expertise.

Bunting has over sixty years experience providing innovative magnetic solutions to industries involved in recycling, demolition and reclamation, mining and quarrying, food processing, ceramics production and powders and minerals processing. The Bunting range of systems are known for their high performance and reliable operations.

Please visit our Website at www.mastermagnets.com to view our full range of Equipment where brochure and video downloads are available.

For more information on our full range of products please contact us on the contact details below.

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