



# **MASTER MAGNETS**

## **INDUSTRY GUIDE**



**MAGNETIC SEPARATION EQUIPMENT**  
**FOR MINING, QUARRYING AND MINERALS**  
**CONCENTRATION INDUSTRY**



The range of magnetic separation equipment commonly used in the mining and minerals concentration industry is split into two categories: Overband, Suspension and Pulley Magnets are used primarily for the extraction of tramp iron from the mined product. Overband Magnets are commonly installed on mobile

## OVERBAND MAGNETS

The Overband Magnet is available as a permanent or electro-magnetic self-cleaning unit for the installation on mobile crushers or over conveyor lines, feeders and gravity chutes.



Overbands allow the continuous separation of general tramp iron from mined products. They are manufactured to be of solid and robust construction in order to withstand the most arduous conditions.

Armour-clad belting is available to increase the service life of the belt when dealing with abrasive materials. Heavy-duty electro magnetic Overbands are also available for more demanding applications.

## PULLEY MAGNETS

The Pulley Magnet is installed at the head of a belt conveyor for the continuous extraction of iron contamination.

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

All units are available with either ferrite or rare earth magnet systems dependent on specific extraction requirements. Electro magnet systems are also available and are typically used for heavy-duty applications.



## HIGH SPEED DRUMS

High Speed Drums are used for the separation of highly magnetic ores such as iron ores, nickel ores, roasted ilmenite and similar in a dry state.

Ore is fed onto the face of the drum as the shell rotates, the material undergoes a tumbling action releasing non magnetics or partially liberated material.

The drum is mounted in a robust mild steel enclosure, supplied as standard with inspection covers, feed hopper, product drive plates and aspirators for dust extraction.



## SUSPENSION MAGNETS

Suspension Magnets are used for the extraction of occasional tramp iron from deep product burdens. These magnetic separators are available with either a permanent magnet system or as an air-cooled or oil-cooled electro magnet.



Suspension Magnets are typically installed over conveyors but can also be used to extract ferrous materials from above vibratory feeders or gravity chutes.

The magnets are available with a complete range of ancillary equipment to aid cleaning operation and to suit application criteria.

## METAL DETECTORS

Metal Detection Ltd (part of the Master Magnets group of companies) has over 40 years experience in providing detection solutions to the mining and quarrying industries.

Used for the protection of valuable processing machinery and providing cleaner end products, Metal Detection can supply many various types of detector units to suit specific applications.



## DRUM MAGNETS

The Drum Magnet is often used in applications where the extraction of very small ferrous materials is required. Typically supplied with a permanent magnet system, the drums can be used for a wide range of applications within the mining and quarrying industries.

The drums can be fitted into totally enclosed housings where product must be kept from external contamination and for more demanding applications, the Drum Magnet is also available with a rare earth or electro magnet system.

Large diameter electro magnetic drums can be used for steel works slag recovery and similar heavy-duty applications.





crushers for this purpose. Magnetic separators are also used for the concentration of mineral products. The separators shown below are capable of achieving the high magnetic intensities necessary for the efficient separation and concentration of paramagnetic minerals.

## WET DRUM SEPARATORS

Wet Drum Separators are used to remove fine magnetic materials from low-viscosity liquids.



Common applications include the recovery of magnetite/ferrosilicon in dense media plants and for the concentration of iron ores.

Wet Drums are available as single or multistage units with concurrent, counter flow and counter current tank designs depending on a customers' specific

application. Demagnetising coils can also be supplied so that separated materials can be demagnetised once recovered.

## MASTEROLL RARE EARTH ROLLS

Powerful Neodymium Iron Boron (Rare Earth) magnetic rolls suitable for the continual dry separation of minerals.



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 separation of paramagnetic content from feldspar, zirconium oxide, quartz and similar.

## DISC SEPARATORS

For the selective separation of a mixture of minerals of varying magnetic susceptibility in one pass with minimum entrapment.

The Disc Separator consists of one or more rotating discs placed above powerful electro magnet circuits.

Up to seven different products can be separated in one pass on a three disc separator.



## HIGH INTENSITY FILTERS

Filters incorporate a powerful electro magnetic coil or permanent magnetic element which surrounds a matrix.

Filters are used for the continuous separation of fine paramagnetic contamination from slurries.

Filters can be designed to produce very high gauss intensities within the matrix for extremely high purity separations. Electro filters are fitted with self cleaning auto backflush systems.



## 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 electro magnets to treat a variety of materials. Single and multiroll arrangements up to 1000mm wide are available.



## WHIM SEPARATORS

Wet High Intensity Mineral Separators are used for the continuous extraction and concentration of fine paramagnetic materials presented in a wet state.

WHIM units can be designed as single, double, 4-station or 8-station units. The 8-station separator has a capacity of up to 160 tonnes per hour.



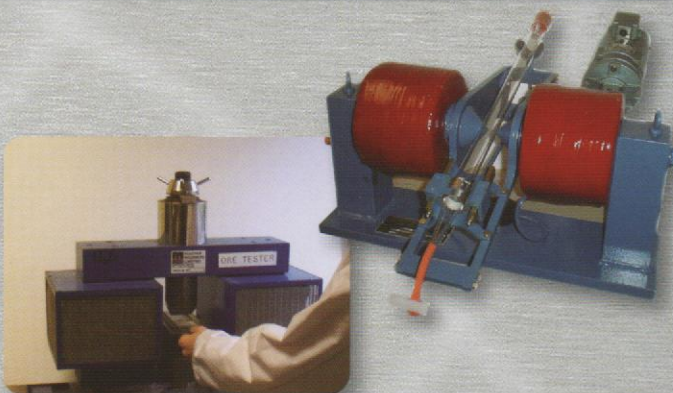


## LABORATORY SAMPLE TESTING SERVICE

To arrive at the best separation criteria, Master Magnets uses a fully equipped laboratory for material testing to ensure optimum equipment selection.

Customers are invited to submit samples for testing and evaluating to enable separation guarantees to be given.

Initial trials are normally carried out free of charge and customers are encouraged, if practicable, to participate in the testing and processing procedure.



## LABORATORY SCALE EQUIPMENT



The MasterMag range of magnetic separation equipment can be supplied to laboratory scale.

Separators previously supplied to laboratories include induced rolls, alternating pole drums, isodynamic separators, wet high intensity separators and wet drums.

Other laboratory equipment for the minerals dresser includes ore testers and wet test chutes with feeders as required.

Laboratory scale Masterroll separator with vibratory feeder.

## A HISTORY OF MINING AND MINERALS SEPARATIONS

Master Magnets has enjoyed global success with its range of pioneering magnetic separators for mining and minerals concentration industry.

Minerals separation equipment has been sold worldwide for uses ranging from the processing of iron ore to extremely high quality ceramics production.

Master Magnets can provide excellent references from customers for all our separators and have built a reputation for quality and high performance.



Master Magnets have over thirty 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 MasterMag range of systems are known for high performance and reliable operations including magnetic separators for metals reclamation, tramp metal protection and high intensity mineral separation.

Please visit our Website at [www.mastermagnets.com](http://www.mastermagnets.com) to view the entire range of Master Magnets Equipment where brochure and video downloads are available.



**Master Magnets Ltd** Incorporating Integrated Recycling Systems Ltd and Metal Detection Ltd.

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