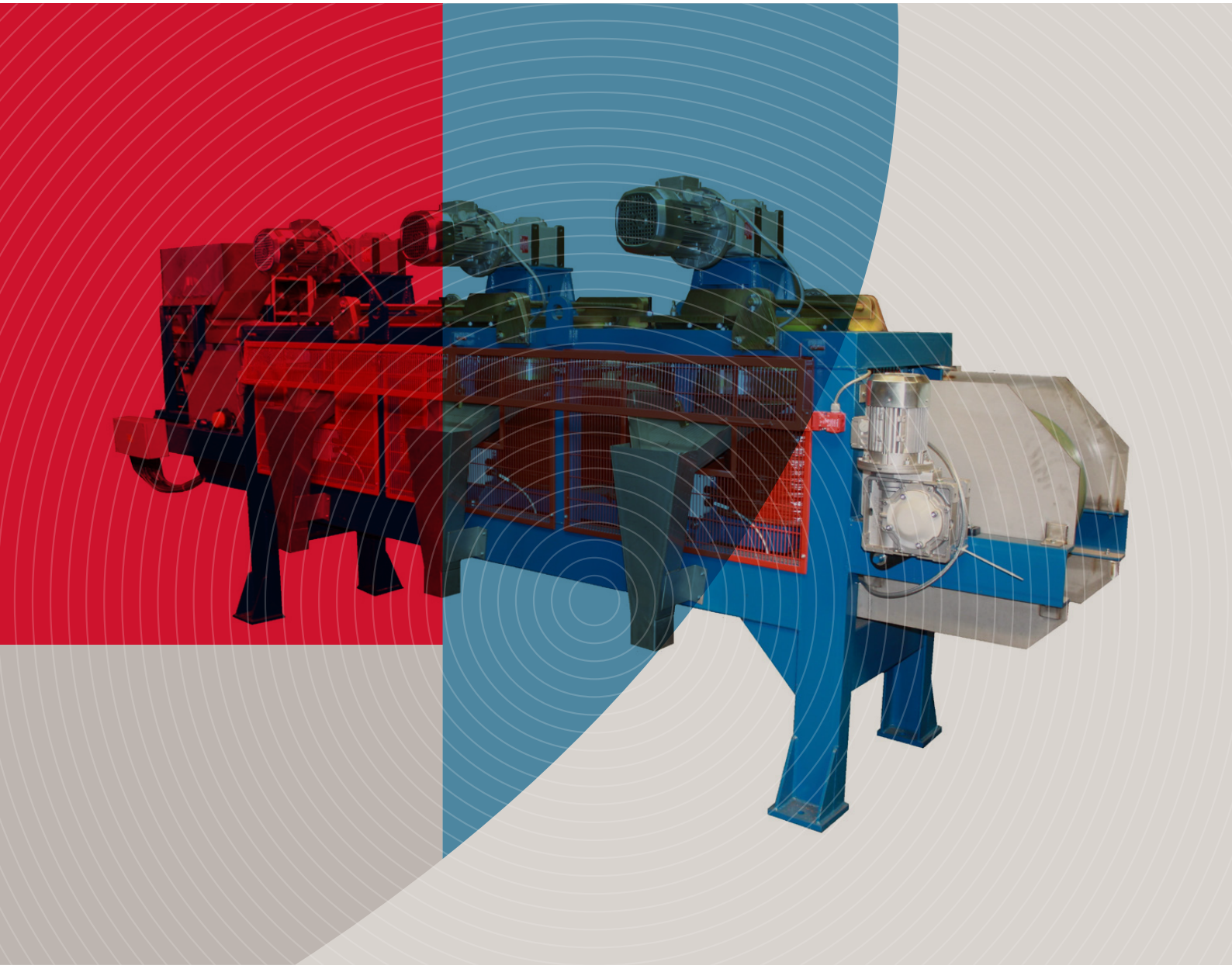
BUNTING®

GLOBAL. MAGNETIC. FORCE.™

Disc Separators



DISC MAGNETIC SEPARATOR

The Disc Separator has a very lengthy history, with its original designs dating back to the early 1900s. Although manufacturing techniques have significantly changed and more advanced machines have now been incorporated, the basic design still remains virtually the same.

Typically, a Disc Separator will feature up to three high-intensity electromagnetic discs, each set at a different height from a feed conveyor. The first disc will be set the furthest from the feed material, in order to extract only the most magnetically susceptible particles. The second and third discs are set at lower gaps, increasing the magnetic force at each disc and therefore separating different grades of magnetic material. Magnetic intensity can also be further adjusted by varying the current of each coil to suit each client's specific mineral separation requirements.

Each disc incorporates its own magnet circuit with two energising coils giving excellent process selectivity at each disc edge.

The discs have a toothed profile that ensures maximum field intensity and gradient allowing the separation of very weakly para magnetic minerals such as monazite. The tilted disc mechanism aids the setting of the belt/disc gap and allows 2 mineral phases to be separated at each disc.

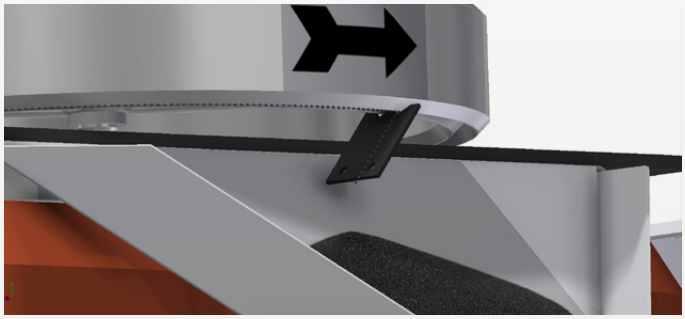
Process Variables on Disc Separator

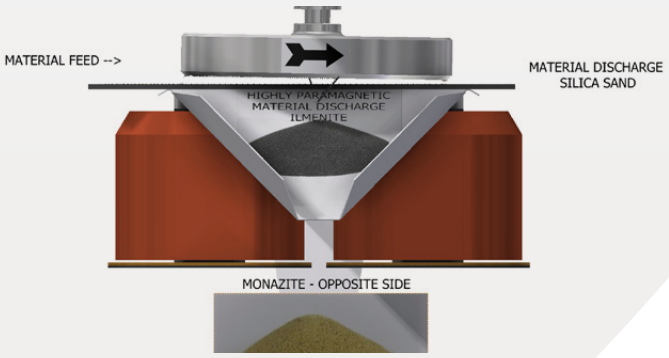
- Disc Rotation Speed.
- Belt feed rate.
- Magnet energising current.
- Operating gap between belt and disc.

Feed material is discharged from a hopper onto a vibratory feeder tray.

A mono layer of material is continuously fed between the rotating high-intensity magnetic discs, where magnetic particles are attracted to the high-gradient zones on the discs. These captured particles are then carried by the rotating discs to the discharge chutes where they are released. Scrapers that are mounted on each of the chutes ensure the total discharge of the extracted magnetic particles.

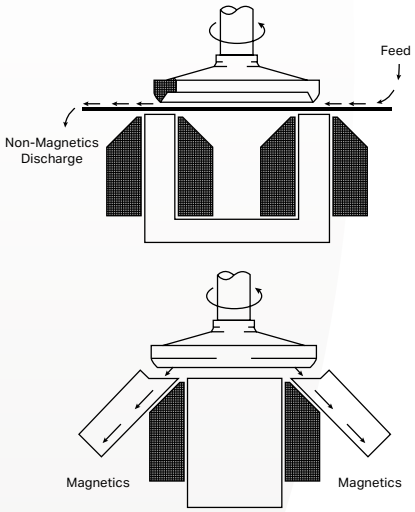
Any feed material that is non-magnetic will pass under each of the three discs and discharge at the end of the convey

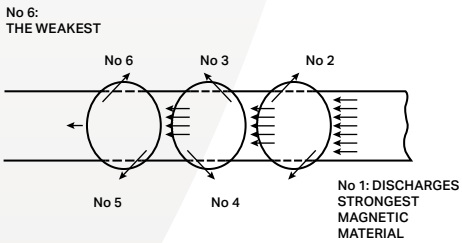




Key Facts: Disc Separator:

- Design permits smaller air gap between mineral and disc hence greater selectivity for mineral separation.
- Series of adjustable discs (incorporating groves for field gradient concentration) revolving around a conveyor belt.
- Typical field strengths can be varied between 1000 Gauss to 14,000 Gauss. (1.4 T).
- Belt width: 350mm





Typical applications for the disc magnetic separator:

- Weakly magnetic minerals from high quality industrial minerals, silica sand, feldspar, nepheline syenite.
- Processing of heavy mineral beach sands, (ilmenite, garnet, monazite and rutile).
- Monazite/zircon separation, garnet concentration and purification.
- Wolframite/cassiterite separation.
- Columbite-tantalite separation.

Typical Processing Capacities: 350 mm belt width

- Heavy Mineral Beach Sand 400-600 kg/hr.
- Garnet Upgrading 400 kg/hr.
- Tin ore processing 400-500 kg/hr.
- Purification of Silica Sand, Feldspar and Nepheline Syenite 400 kg/hr.

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.

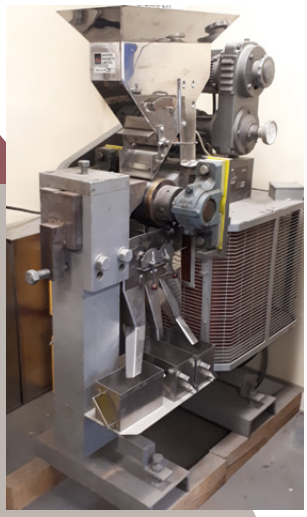
LABORATORY SAMPLE TESTING SERVICE

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.

BUNTING - REDDITCH

BURNT MEADOW ROAD, NORTH MOONS MOAT,

REDDITCH, WORCESTERSHIRE, B98 9PA

E-MAIL: SALES.REDDITCH@BUNTINGMAGNETICS.COM

TEL: +44 (0)1527 65858