

Aerodynamic spherical magnet technology increases separation efficiency from bulk powders conveyed in vertical blow-lines and Vacuum Lines

The “magnetic sphere” provides hugely increased magnetic energy forces compared to conventional bullet magnets. Gauss readings using RE80™ magnetics can be as high as 12,000 gauss (1.2 Tesla). New equipment comes with externally endorsed certificate verifying magnetic strength on supply - based on a currently calibrated gauss meter or pull test.

This paper tells you how simple it is to upgrade from bullet or grate type magnets to spherical magnets at low installation cost. Simultaneously, you lower WHS risks and achieve easier magnet cleaning from the accessible magnetic sphere.

Whether the product to be magnetics free is flour, dairy powders, starch or pharmaceutical powders, Spherical magnet technology means you can keep up with climbing food safety standards.

Spherical magnets are successful in vertical sections of pipelines for 3”, 4”, 6” or 8”. Flow direction can be up or down. Larger spheres can remain supported during cleaning .

Large flour mills have easily switched to Spherical technology to magnetically clean product conveyed to bagging operations, bulk out-loading to silos or direct filling of flour trucks.

Large bakeries have installed spherical magnets to indicate or monitor metal content and provide CCP separation prior to dough making.

Significantly, metal detectors are useful in detecting >0.2” stainless steel fragments, whereas RE80™ spheres also extract magnetic fragments down to the size of dust. (If adding iron powder supplement, please do this downstream of the magnet installation!)

Spherical magnets are also useful in vertical gravity flow chutes up to 10” and are more easily manually cleaned than Grate magnets

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Photo 1.

One of MAGNATTACK™ Globals’ Spherical Magnets successfully installed at a major Australian bakery.



Photo 2 & 3.

Examples of MAGNATTACK Spherical Magnetic Separators.

handling smaller flows of product such as wheat germ, bran, meal mixes and dry ingredient powders.

Highly powered Spherical magnets can;

- reduce risks of product contamination by metal fragments,
- reduce risks of product recall or brand name damage,
- can cut magnet cleaning time,
- reduce down time and damage to machinery.

How does a Spherical magnet design achieve such success?

- 1) The smooth sphere maximizes “contact” of product and magnetics to the magnet with minimal impact and friction.
- 2) The sphere has a conical nose cone which smoothly directs the product around the sphere whilst extracting the magnetic particles. The fragments (including weakly magnetic rust, stainless steel powders, magnetic stone fragments, etc) are swept around the sphere where they accumulate safely retained on the downstream hemisphere against the product velocity.
- 3) The effect on product density is minimized by the low resistance offered by the spherical design inside a predominantly spherical outer SS housing.
- 4) Access to the magnet sphere is via tri-clover clamp and seal.

Over the next decade we will see many conversions to Spherical magnetic separation technology in flour milling and dairy powder industries alone, due simply to;

- the efficiency of separation
- meet rising food safety standards
- 5 times more bulk of magnetic energy than grate magnets
- 3 times higher gauss rating than most bullet magnets
- low cost installations
- easier and safer magnet cleaning
- assured product flow and capacity
- equipment and documentation meets HACCP International hygiene and strength standards.

MAGNATTACK™ Global has over 40 years of magnetic separation experience. The company supplies magnetic separation solutions worldwide focusing on milling, food and dairy powder processing, pharmaceutical and quality pet food manufacturing.

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Photo 4.

Example installation of MAGNATTACK™ Globals' Spherical Separator with the magnet sphere removed from the housing and sitting in the provided cleaning station.

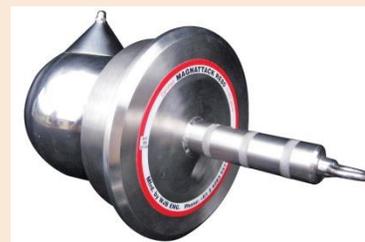


Photo 5.

Photograph of MAGNATTACK™ Globals' Spherical Element showing the nose cone which directs the product evenly around the sphere whilst extracting magnetic particles.



With the backing of HACCP International, MAGNATTACK™ Global continues to develop new Magnetic Separation products to latest standards.

Magnattack Global is committed to quality and aims to provide the most effective and hygienic magnetic separation equipment currently available for food industries operating under a HACCP food safety control system around the world.



Photo 6 & 7.

Example photographs of Spherical magnet installations on flour & milk powder lines.

To conserve your housing investment, bullet to spherical conversion kits are available. Simply advise the feed pipe size and the inside diameter of the housing at mid door height.

Production, Engineering or Quality Managers can obtain proposals for Spherical Magnets by simply emailing or calling MAGNATTACK™ Global and one of our MAGNATTACK™ Global Magnetic Separation Engineers will respond to your enquiry within 24 hours.

- *Aerodynamically designed*
- *Quick magnet removal and reseat*
- *Cleaning station and brush provided*
- *Safety cable and lock provision*
- *Efficient out of the way retention area on the outgoing hemisphere*
- *Similar clearance around sphere cross section of feed pipe = low resistance to flow.*

