Magnetic Separation & Metal Detection Systems

Process Protection for the Plastics Industry

ECLIPSE MAGNETICS

Innovation in Magnetic Technology

Celebrating 100 YEARS Manufacturing excellence 1914 - 2014

Over 100 years of experience

With over 100 years of experience in the design and manufacture of high performance magnetic systems, we supply critical equipment to some of the leading names in the most demanding industries.

Our Separation and Detection systems are used in almost every processing industry to remove metal-based contamination, thereby protecting product purity and process machinery.

Designing Excellence

We have a track record of producing high quality products backed by a commitment to total customer service. Our technical application teams have a wealth of experience, thus ensuring many of our products are market leading innovations.

All manufacturing is carried out under an ISO 9001 certified quality management system and we are accredited to ISO 14001 environmental standards.

Experts in Foreign Body Removal

We manufacture a wide range of Foreign Body Removal systems for all stages of plastics processing. Including high performance magnetic separators and detection systems for gravity, pneumatic and conveyor fed processes.

We are fully conversant with all major industry standards such as FSA, FDA and IFS, plus institutes such as BRC and GFSI. Many of our magnetic separation products have full ATEX certification.

Our clients can rest assured that we also offer full technical back up, post-sale service and repair where required.

Achilles FPAL REGISTERED

SAFEcontractor APPROVED

Ex

EHEDG EUROPEAN HYGIENIC ENGINEERING & DESIGN GROUP COMPANY MEMBER 2010

Increasing Productivity & Efficiency in Plastics

Protecting Process Equipment

Our range of Metal Separation and Detection systems has been developed to increase efficiency by protecting expensive process machinery from potentially damaging metal contamination, thereby reducing breakdowns and increasing productivity.

They are used in either virgin or recycling processes to protect equipment such as injection or blow moulding tooling, grinders, extruders, nozzles, mixers and rollers from ferrous objects such as nails, screws, metal closures or fine particles created by process wear.

Protecting Product Purity

Metal Separation and Detection systems are a key component in ensuring that the finished product meets required quality standards. Fine particle metal contamination can reduce the quality of virgin or recycled materials and finished products.

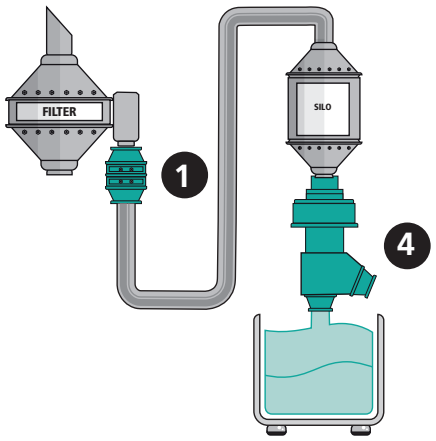
Larger metal-based items can cause blockages which have an adverse effect on the final injection process, thereby reducing end product quality.

High Performance Magnetic Separation and Metal

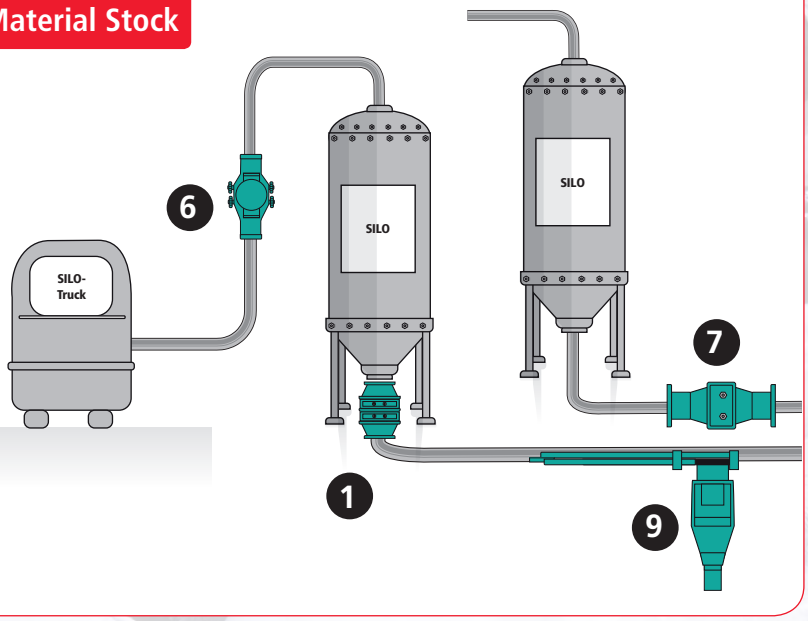
Our Separation and Detection systems are widely used in various critical points in plastics processing.

They are usually installed at the in-feed of extruders or blow and injection moulding machinery. They are also used to remove ferrous contamination from free falling or pneumatically fed granulate. They can be easily fitted into existing feed lines. The illustrations below show some typical installation points:

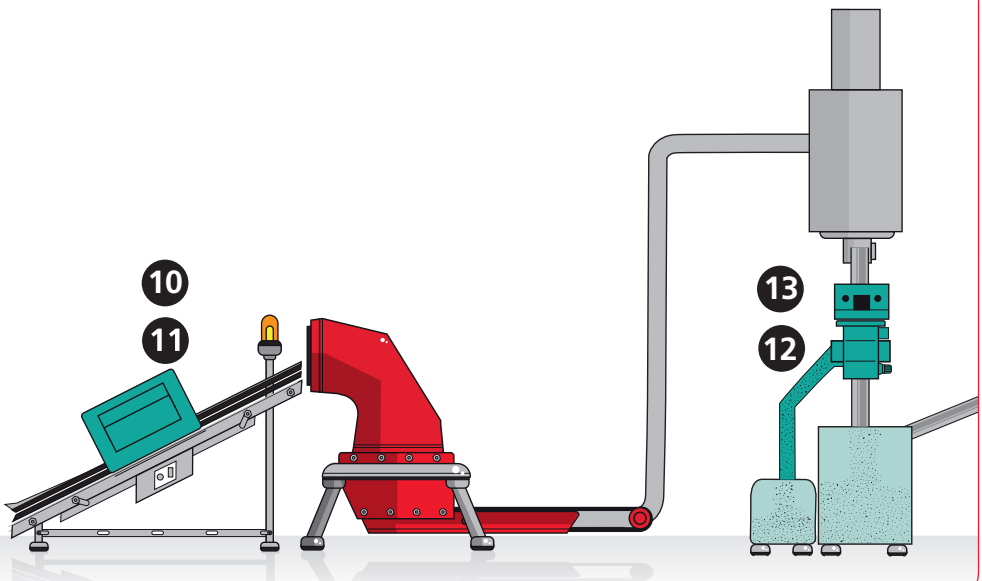
Granulate production



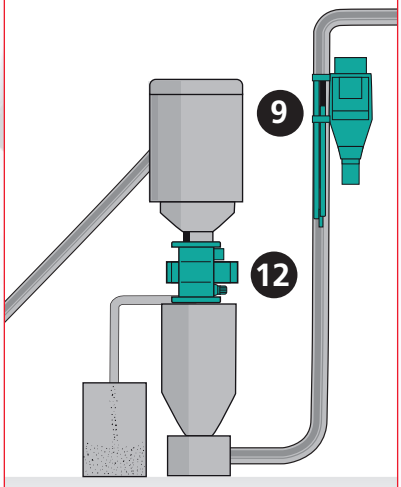
Material Stock



Grinding



Conveying



Detection - Typical Installation Points:

Product reference

1. Housed Easy Clean Grid (or standard Fixed Grid option / Hopper Guards) — Page 6/7
2. Chute Magnet — Page 7
3. Rapid Pro-Sense Separator — Page 8
4. Rapid 5000 Separator — Page 9
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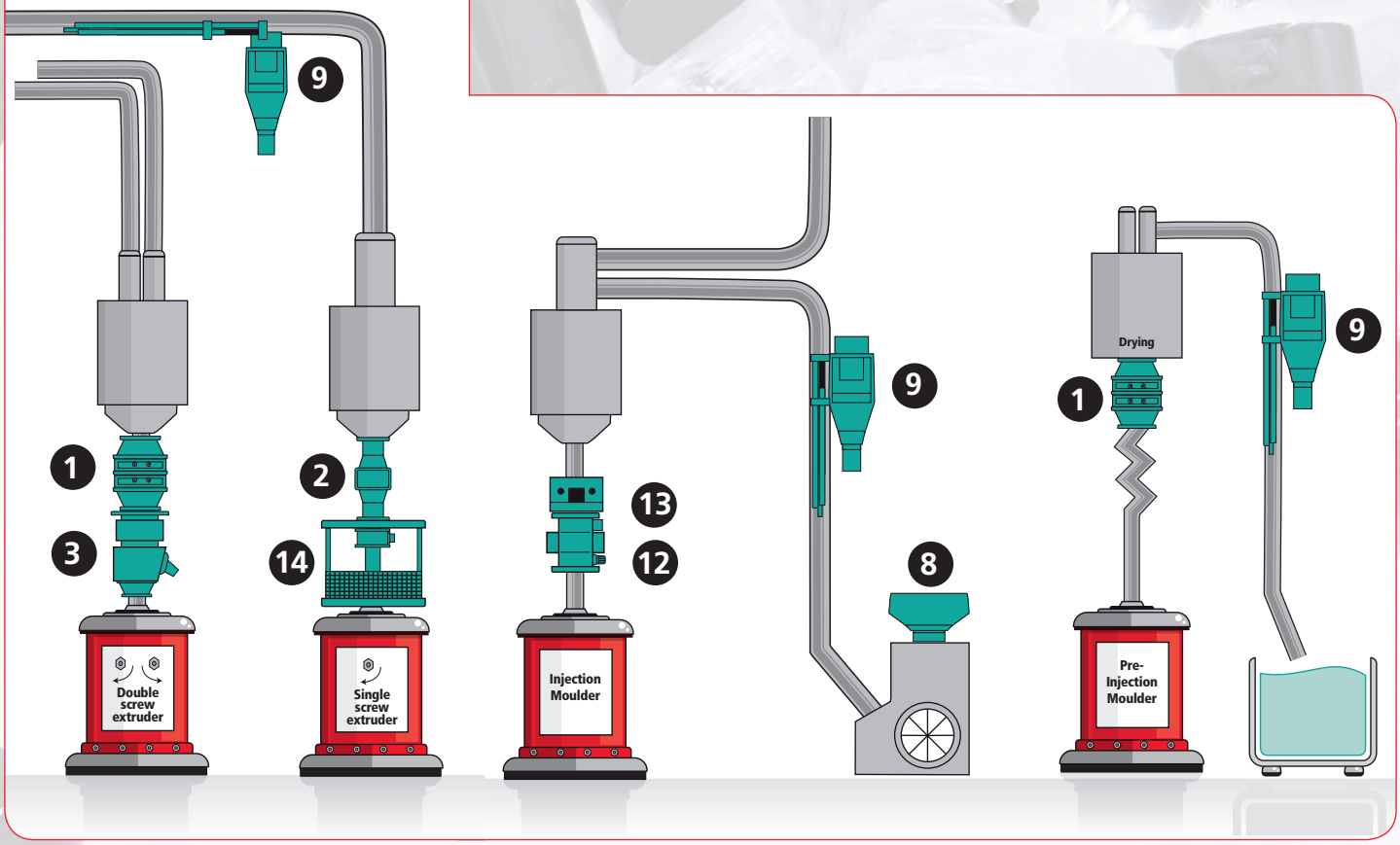
14. MF Metal Separator — Page 14

Production



Product Range - Gravity Feed

Housed Easy Clean Grid

Our cost-effective high intensity easy clean housed grids can be installed easily into gravity feed lines. Ideal for powders and granulate the unit contains one or more easy clean magnetic grids secured by tri-cone locking nuts in a removeable housing.

The modular unit can be supplied to be compatible with either square or round connections. It features the easy clean design which ensures cleaning can be done in minutes with minimal disruption to the process. By removing the magnetic cores from the housing the attracted contamination simply falls away and the core can be re-inserted thereby minimising downtime.

Round Double Row

Typical Installation Points

Free-fall pre-silo feed, post silo on feed to extruder or moulder.

Round Single Row

Square Single Row

Square Double Row

Sizes we offer

Round Jacobs Connection	
Inlet/Outlet mm	Inlet/Outlet mm
Single Row	Double Row
80 Ø	80 Ø
100 Ø	100 Ø
120 Ø	120 Ø
150 Ø	150 Ø
175 Ø	175 Ø
200 Ø	200 Ø
250 Ø	250 Ø
300 Ø	300 Ø

Square Jacobs Connection	
Inlet/Outlet mm	Inlet/Outlet mm
Single Row	Double Row
120 x 120	120 x 120
140 x 140	140 x 140
180 x 180	180 x 180
200 x 200	200 x 200
250 x 250	250 x 250
300 x 300	300 x 300

Product Range - Gravity Feed

Circular Hopper Guard

Square Hopper Guard

Grid Magnets -
Easy Clean Grid Magnet or Fixed option / Hopper Guards

Our high intensity magnetic grids are available in easy clean or fixed options. They can be used in most powder or granulate applications to remove ferrous and para-magnetic contamination, including sub-micron sized particles.

The units can be manufactured to any size with any number of rods. It's low profile means it can be installed in existing chute work or machinery with minimal disruption.

We also offer a range of hopper guards to separate metal from polymers and avoid damage to nozzles and hot-runners.

Typical Installation Points

Free-fall pre-silo feed, post silo on feed to extruder or moulder hopper feeds.

Chute Magnet

The Chute Magnetic separator has been designed to operate in arduous conditions to capture primary contamination such as wire, nuts and bolts.

A central diverter directs processed product towards the magnet packs which ensures ferrous contamination is removed from the process.

The Chute Magnet separator can be installed into any vertical or angled chute or pipework. It also features an "easy clean" quick release system.

Typical Installation Points

Free-fall pre-silo feed, post silo on feed to extruder or moulder.

Product Range - Gravity Feed

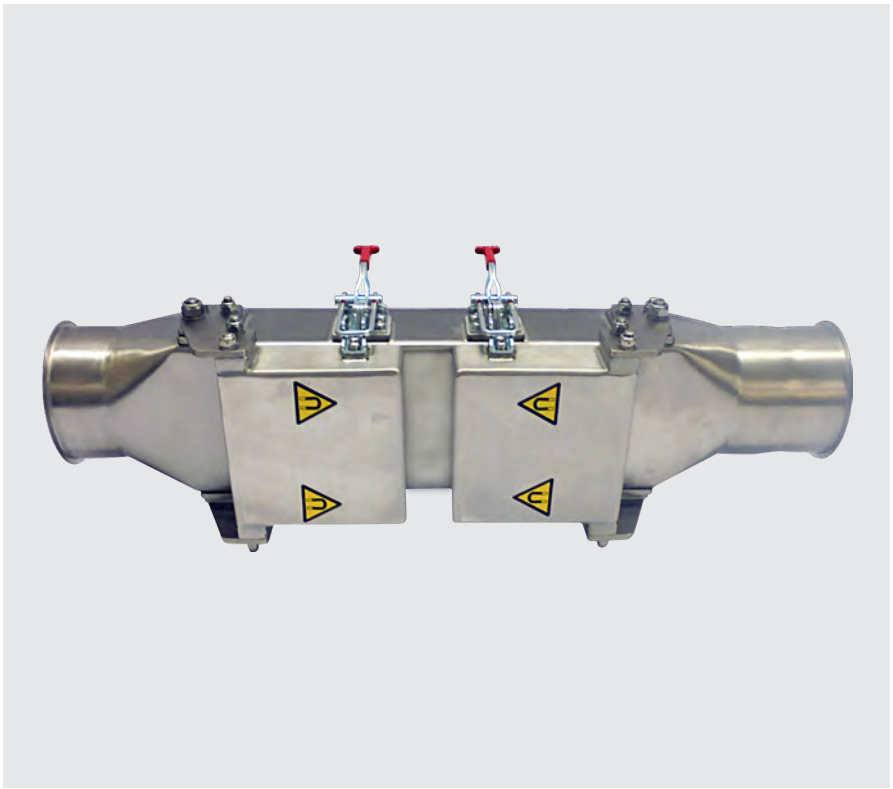
Housed Underflow

The Housed Underflow magnetic separator can be incorporated into any form of angled pipe or gravity feed chute section.

It is designed to operate in arduous conditions, where contamination size is relatively large such as nuts, bolts, wire closures.

Typical Installation Points

Vertical or inclined gravity feed chutes for incoming raw material.



RAPID Pro-Sense Metal Separator

The Rapid Pro-Sense provides accurate and reliable metal detection and separation for free-fall processes in quality inspection and compound product.

A “Quick Flap” system ejects contamination without disrupting flow and minimises good product being sent to waste.

The modular easy to install unit uses High Resolution Frequency technology to ensure the highest scanning sensitivity for all metals.

Typical Installation Points

Free-fall silo feed, post silo feeds, outgoing quality control, bag or bin filling points.

Product Range - Gravity Feed

RAPID 5000 Metal Separator

The Rapid 5000 is ideal for bulk applications on free-fall feed pipes. It detects all metal contamination which is then removed from process through an in built "Quick Flap" reject unit.

With a low installation height it can easily be incorporated into existing pipework with "Jacobs" connections.

Typical Installation Points

Free-fall pre-big bag, Octabin or silo filling points.

RAPID DUAL Metal Separator

The Rapid Dual is a compact system with integrated detection and separation units. It detects all magnetic and non-magnetic metal contamination (steel, stainless steel, aluminium) – even when enclosed in the product.

Ideal for most free-fall systems it features a "Quick Flap" reject mechanism for fast efficient separation of metal contamination.

Standard Jacobs adaptors for inlets and outlets ensure quick, hassle-free installation into existing pipework.

Typical Installation Points

Free fall, pre-extruders, fine grinding, pellet presses. Inspection of incoming goods, granulate, reclaim stations or bagging stations.

Product Range - Pneumatic Feed

Bullet Magnet

The Bullet Magnet is ideal for removing tramp ferrous metals from gravity or pneumatically conveyed feed systems.

A high intensity magnetic bullet element is centrally mounted within a stainless steel housing, the design ensures that product flow is unaffected.

Typical Installation Points

Pre-silo pneumatic feed pipeline from incoming raw material.

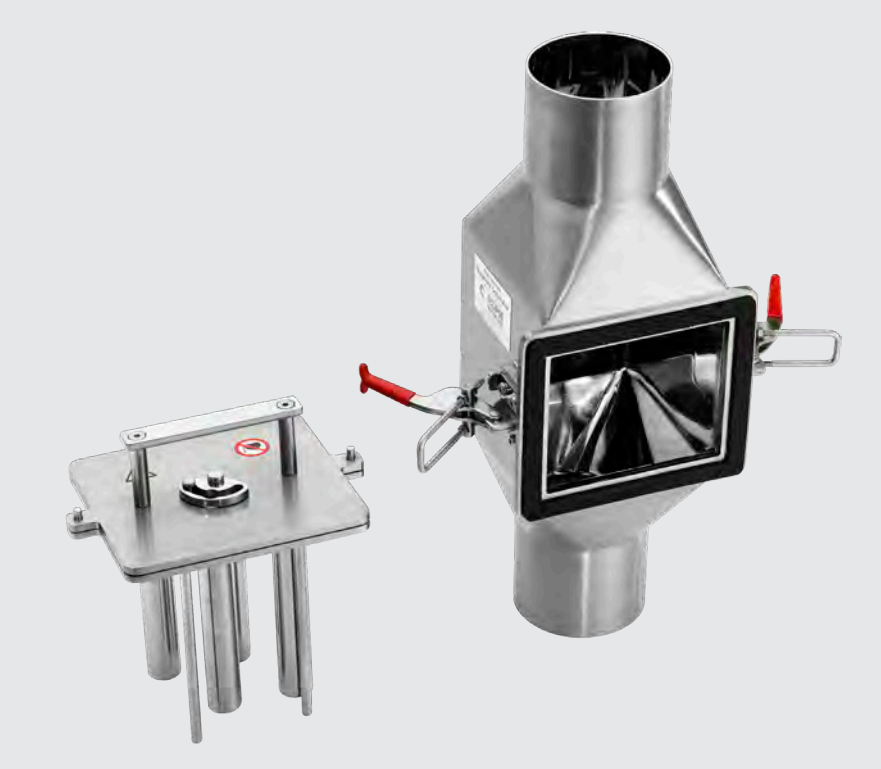
Pneumag

The Pneumag can be incorporated into pneumatic feed lines from lean to dense phase. Suitable for dry powders or granules the unit contains a high intensity double row magnetic cartridge.

Featuring an easy clean design, it can be installed at any angle and still maintain excellent performance.

Typical Installation Points

Pre and post-silo pneumatic feed pipelines.



Product Range - Pneumatic Feed

P-SCAN Metal Detector

Available in a range of inlet/outlet sizes, P-SCAN can be installed in gravity, pneumatic or vacuum feed pipelines. A compact design allows it to be installed in restricted space applications.

It detects magnetic and non-magnetic metal contaminations even if such contaminations are embedded in the product, reducing potential damage to moulds and machinery.

Typical Installation Points

Post-silo feed to moulders or extruders, quality inspection points.

GF Metal Separator

Ideal for pneumatic pipelines the GF separator features a “Quick Flap” reject unit which separates both magnetic and non-magnetic metals from the process without affecting flow.

The GF can be easily integrated into existing vacuum or pressure pipework and installed in horizontal, vertical or inclined configuration.

Typical Installation Points

Pre-moulding, extrusion and grinding equipment, pneumatic feed.

Product Range - Systems for Conveyors

C-Scan and DLS Tunnel Metal Detector

The DLS system can be installed on existing or new inclined or level conveyor belts to protect cutting mills and shredders. It can be supplied with a selection of reject mechanisms if required.

It detects all magnetic and non-magnetic metal contaminations (steel, stainless steel, aluminium) – even if enclosed in the product. On detection of metal, a signal device and a separation system can be activated or a signal can be sent to a process controller.

Typical Installation Points

Inclined or level conveyor feed to shredders, cutting mills or grinders.

GLS Tunnel Metal Detector

Available in a variety of aperture sizes the GLS can be installed on existing or new conveyor belts to detect bead wire breaks in plastic particles.

The TMD model ensures a high sensitivity performance making it ideal for high-precision applications.

GLS metal detectors can be combined with a wide variety of separation systems (e.g. air blast units, pushers, reject flaps, retracting belts etc.)

Typical Installation Points

Inclined or level conveyor feed to shredders, cutting mills or grinders.

Product Range - Other systems

PROTECTOR Metal Separator

Ideal for free fall gravity feed applications the PROTECTOR series detects all magnetic and non-magnetic metal contaminant even when they are enclosed in the product.

Ideal for slower moving pellets and granules it comes complete with a "Quick Flap" separation unit to eject contaminants.

Typical Installation Points

In-feed to injection or blow moulders or extruder.

SAFEMAG In-Line Magnet

Used in conjunction with PROTECTOR separators SAFEMAG is ideal for slow-moving bulk granulate products on gravity feed lines.

The Safemag is designed for inspecting granulates up to a grain size of 6-8 mm at a temperature up to 100˚C in standing or slow-moving material columns.

Typical Installation Points

Slow moving or standing columns on material loaders, mixing and dosing equipment.

Product Range - Other systems

MF Metal Separator

The MF Metal Separator reduces costly tool and machinery damage by detecting and separating magnetic and non-magnetic metal contamination, even when enclosed in the product.

A fast-acting separating slide ensures that the loss of good material is kept to an absolute minimum.

Typical Installation Points

Material in-feed to injection or blow moulders or extruders.

Magnetic Separation in Action

Eclipse provide Magnetic Solution for Bottle Sorting Plant

We provided magnetic separators for one of Europe's largest mixed plastic bottle sorting facilities which processes over 140,000 tonnes of material each year.

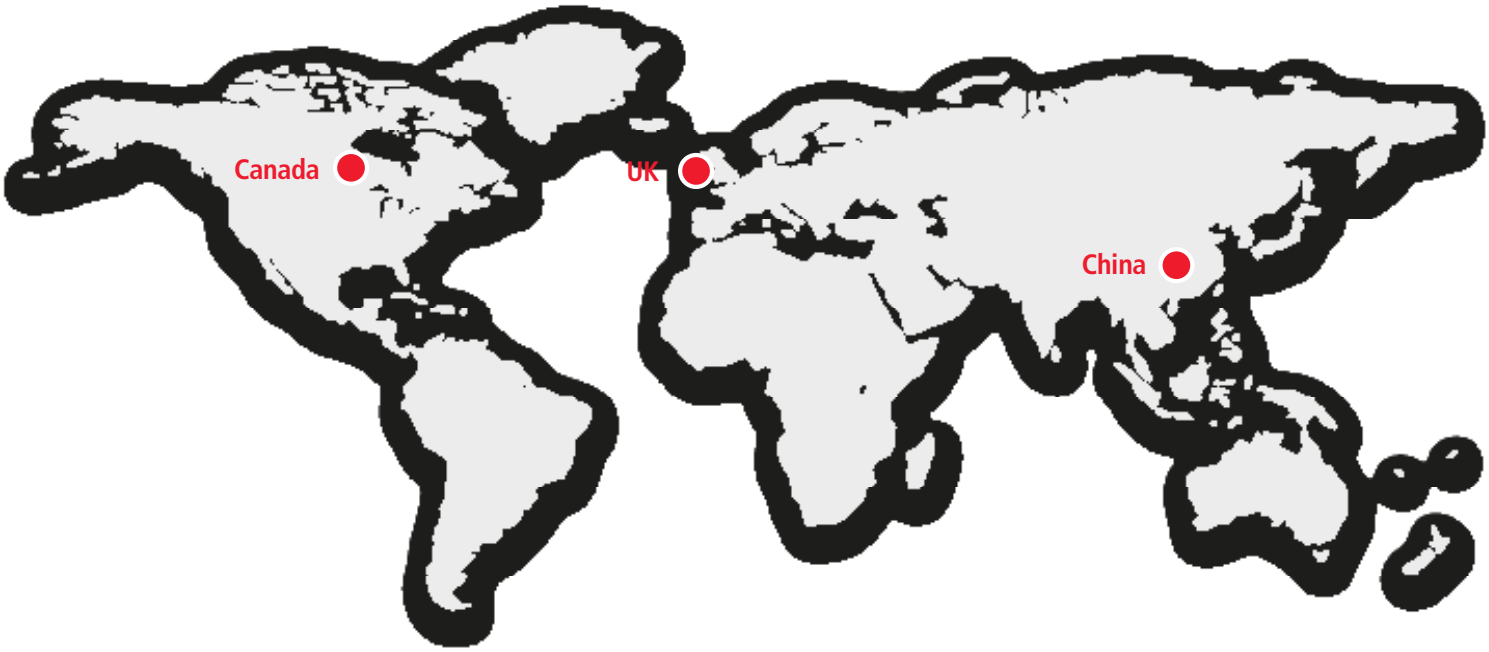
Detergent bottles are fitted with metal spring loaded trigger mechanisms which become fragmented during the granulating process. If the metal is not removed it causes damage to equipment, such as pellet extruders and wash systems. In addition batches of the final pellet extrusion will be rejected due to metal being present.

The client needed a means of removing the metal at the post-granulation stage, without affecting production efficiency, and be big enough to handle 5 tonnes of granulated PET per hour. The solution would need to run constantly for 24 hours a day and ensure that blockages did not occur whilst the granules passed through the magnet.

"..removes 85kg of ferrous materials from the process each week..."

Our Auto-Rota Shuttle magnetic separation system. With high intensity 9000 gauss magnetic rods, the Auto-Rota Shuttle captures the metal fragments. In addition the magnetic assembly rotates in process, ensuring that the granules are turned as they flow through the unit. This prevents any bridging or blockages around the magnets thus ensuring a uniform flow of the granulated plastic.

The Auto-Rota Shuttle is ideal for continuous 24hour operation, it's fully automated cleaning system discharges ferrous contamination without having to stop the line for cleaning or routine maintenance. 2 Auto-Rota Shuttle units remove 85kg of ferrous materials from the process each week, thereby protecting machinery and the end product.



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