Silokonsult
PROCESSTEKNIK SWEDEN AB

Kämpagatan 1
SE-532 36 Skara
+46 511 10365
info@silokonsult.se
www.silokonsult.se

ATEX magnets for applications in explosion-hazardous environments

The ATEX directive (ATEX: ATmosphères EXplosibles) is a harmonized European standard intended to prevent gas and dust explosions. Directive ATEX 94/4/EC (ATEX 95) is for equipment manufacturers. Directive ATEX 1999/92/EC (ATEX 137) is for the users and is intended to protect workers potentially at risk from explosive atmospheres.

The ATEX directives distinguish between gas and dust environments. Goudsmit only makes equipment for use in dust-hazardous environments. Areas with a risk of explosion are subdivided into various zone categories, depending on the frequency of potentially explosive conditions. We divide equipment suitable for use in ATEX zones into three categories: 1, 2 and 3. These correspond to the protection levels: very high, high and normal.

Explosion-hazardous environment	Protection level of equipment	Gas (G)		Dust (D)	
		Zone	Category	Zone	Category
Frequent to continuous	Very high; safe in exceptional conditions	0	1G	20	1D
Now and then	High; safe for reasonably expected failures	1	2G (1G)	21	2D (1D)
Unlikely, seldom, brief	Normal; safe for normal operation	2	3G (1G, 2G)	22	3D (1D, 2D)

An externally certified quality assurance system (ATEX QAN) is required for manufacturers of ATEX equipment. Goudsmit is one of the few companies in the magnet industry to possess this certification. Additionally, product conformity certificates (ATEX certificates) are required for ATEX devices in categories 1 or 2. Goudsmit Magnetics has these certifications for various systems and can therefore deliver magnet systems and metal detectors for use in zone 20/21.

Plate magnets

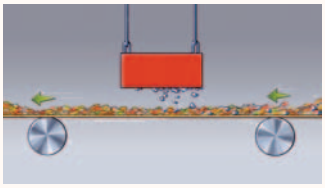
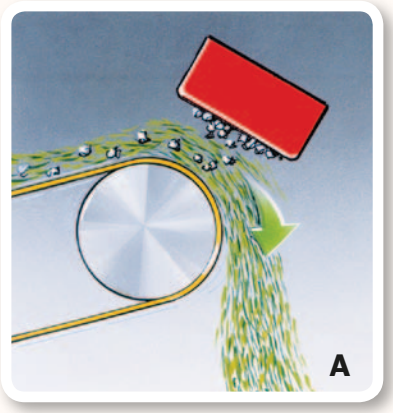


Plate magnets remove ferromagnetic particles from various products, such as those in the plastics, wood, stone, ceramic and food industries. There are various ways to install plate magnets, including hanging above the conveyor (type A) or against/under the wall of a conveyor (type B). As a general rule: the closer the magnet is to the product, the more effective the iron separation is. Goudsmit builds all the plate magnets with flux control for installation above product lines (type A). These include extra magnets between the poles that cause the lines of flux to penetrate deeper into the product flow. Plate magnets for applications in which the product flows over the magnet (type B) are designed with the strongest possible magnetic field over the poles, rather than deeply penetrating lines of flux. A keyway prevents captured ferromagnetic particles from being carried away again.



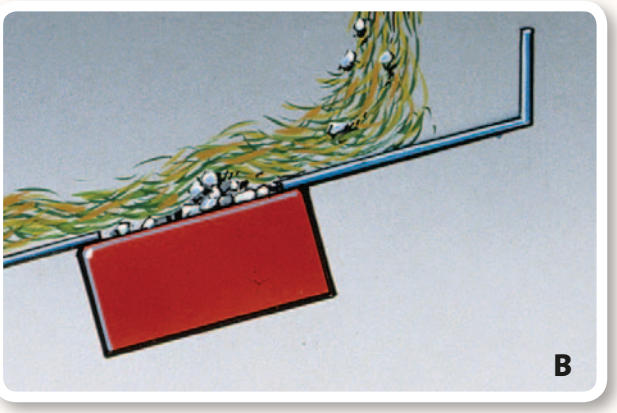


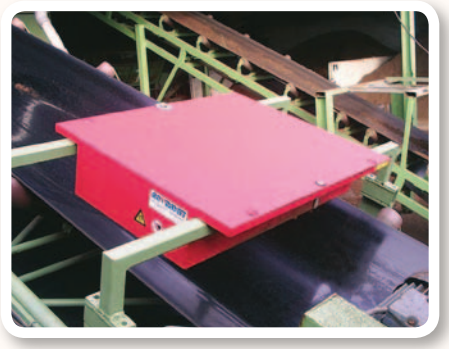
Plate magnets

Ferrite plate magnets
- Cost effective
- Good penetration strength (up to 400 mm)
- Suitable for up to approx. 250°C
- Value at magnetic poles: 2800 Gauss
- Not suitable for capturing stainless steel scrapings
- Application: in recycling industry or as protection of grinding mills for animal feed.

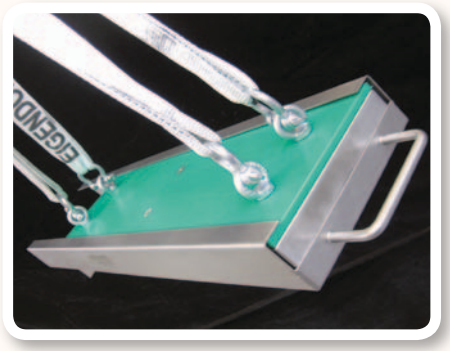
Ferrite plate magnets (variable length)		
Type number	**W - H mm**	**Catchfield**
VMF1	114 x 47	65
VMF2	154 x 47	75
VMF4	204 x 92	110
VMF5	304 x 99	140

Neoflux® (nd-fe-b) plate magnets
- 4 times more powerful than ferrite magnets
- More temperature sensitive
- Light and compact
- Standard version suitable for up to 80°C
- Special version for up to 180°C
- Field strength of magnetic poles max. 8000 Gauss at the keyway
- Design: completely stainless steel waterproof (IP67)
- Supplied in quick-cleaning version (with stainless steel protection plate)
- Suitable for the food industry.

Neodymium plate magnets (Nd-Fe-B) (variable length)		
Type number	**W - H mm**	**Catchfield**
VMN6	114 x 34	80
VMN2	205 x 55	180
VMN3	158 x 32	120



Ferrite plate magnet above belt, for removal of fe-particles from potting soil.



Neoflux® plate magnet with cleaning drawer.

Plate magnet holding field depth (force index) determined by means of **computer design**

A plate magnet has a deeply penetrating field. It attracts ferromagnetic particles from great height. The degree of attractive force is not dependent on the weight but rather the shape of the fe-particle. It is easiest to capture a flat wafer. Next easiest is a rod shape, followed by a cube. A sphere is the most difficult to capture. The field strength required to capture a particular shape is known. This is called the 'specific force'. Because we know the force index of a particular magnet, we can predict whether or not a particle will be captured. Goudsmit does this through use of a finite elements calculation program, thus assuring you of an optimally functioning magnet system.

Plate magnet for the removal of ferromagnetic particles from French fries.