

# PLATE MAGNETS

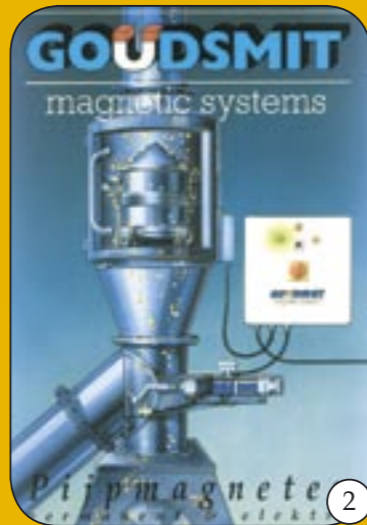


## Teamwork between three divisions

Behind the Goudsmit Group stand the divisions where various disciplines are housed. They are ready to supply fitting answers to all your questions about magnets.

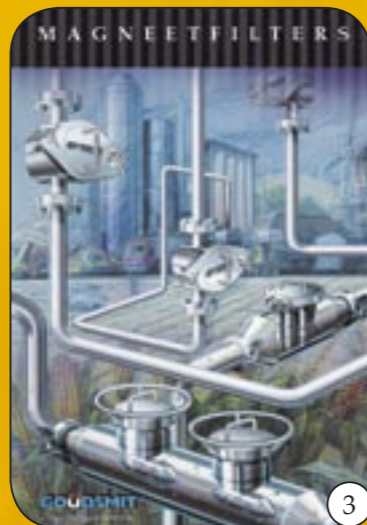


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- 1 Clean-flow magnets
- 2 Pipe magnets
- 3 Magnet filters

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Plate magnets remove iron particles from various products. In this brochure you can see a few installation and cleaning possibilities of such magnets. In general the following holds: the closer the magnet comes to the product the better the separation of iron is done. However, these are not the only uses. Please contact one of our technical experts if the desired use is not mentioned in this brochure.



Installation possibility type A plate magnet.



Installation possibility of the type B plate magnet.  
Quick cleaning possible by means of an extractor plate.

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## MAGNETS HANGING ABOVE THE PRODUCT

Goudsmit Magnetics makes all type A plate magnets with **fluxcontrol**. There are extra magnets between the poles making sure the field lines go deeper into the product. This increases the chance of catching the iron particle and it results in a magnetic force which is 20% higher with the same magnet dimension. The computer calculation below shows that the field lines penetrate deeper into the product with a magnet with fluxcontrol.

**A**

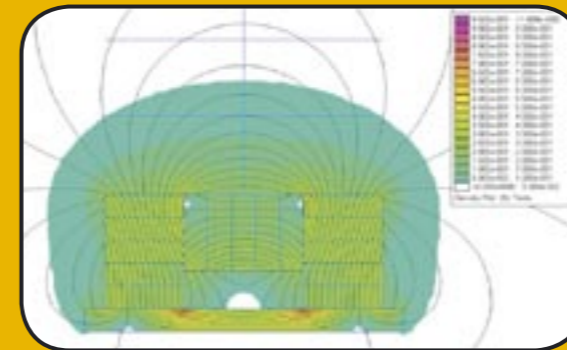
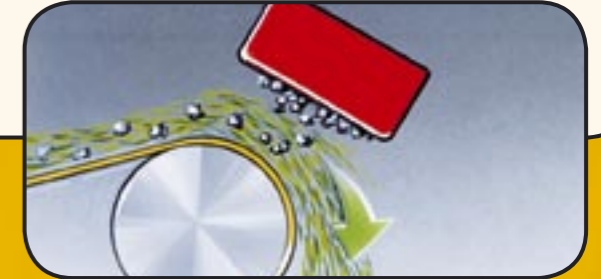
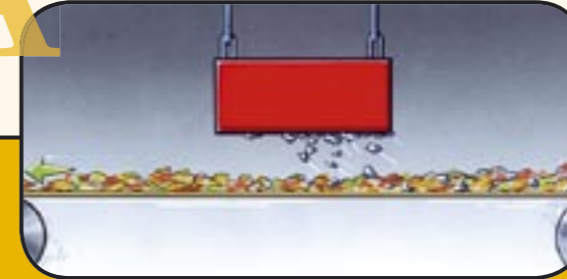


Plate magnet with fluxcontrol.

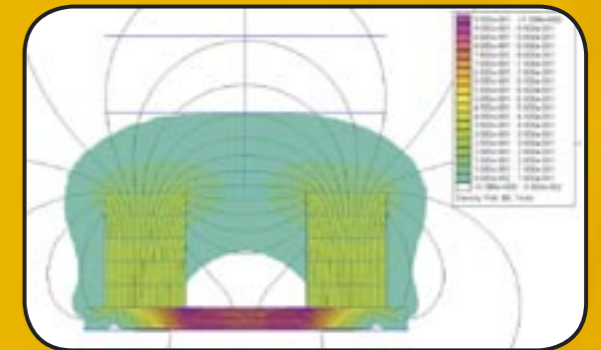


Plate magnet without fluxcontrol.

## MAGNETS ON WHICH THE PRODUCT FLOWS

The extraction of iron particles is easy if the product flows over the magnet. Not the penetrative effect but an as strong as possible magnetic field on the poles is important when the magnet is designed. Even RVS scrapings can be extracted with that. A key prevents the already extracted iron particles from being swept along. They keep hanging behind this key.

**B**

### Computer design

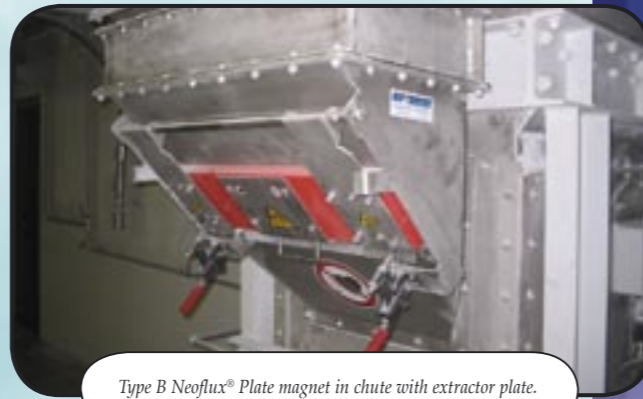
Goudsmit makes use of a limited element calculation programme enabling them to determine whether separation of an iron particle is possible. This determines in advance whether or not a particle can be extracted. As a general rule round, spherical objects (such as bullets, hammers or shovel teeth) are more difficult to separate than flat parts (such as well covers or crown caps). Not the weight but the form of the product to be attracted is important for the design of the magnet.



## NEOFLUX® OR FERROXDURE?



Type B Neoflux® magnet. Compact and powerful.



Type B Neoflux® Plate magnet in chute with extractor plate.

Quality	Remanence Tesla (Br)	Coercivity kA/m (Hcj)	Max energy prod kJ/M3 (BH max)	Max temp °C
GSF33	0,37 - 0,39	216 - 248	25,5 - 29	225
GSN38	1,24 - 1,27	955 - 1114	295 - 310	80
GSN42	1,34 - 1,40	876 - 955	326 - 342	80
GSN53	1,39 - 1,42	990 - 1030	370 - 395	80

All plate magnets can be fitted either with Neoflux® or Ferroxdure magnets.

### Ferroxdure magnets:

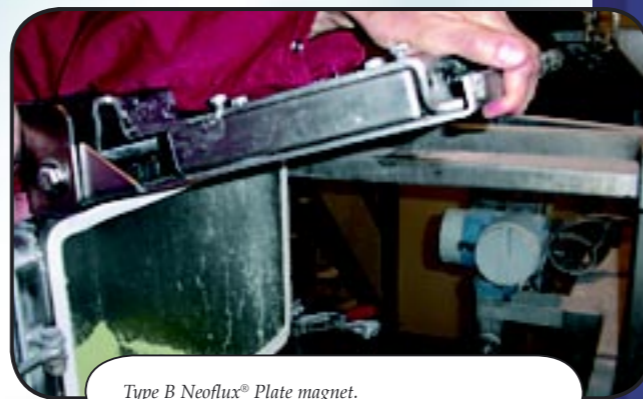
- are cheaper
- have a good penetrative effect (to max. 400 mm)
- can be deployed to approx. 250°
- value on the magnetic poles: 2800 Gauss
- not appropriate to extract RVS scrapings
- application: In the recycling industry or as protection of grinding mills in feed.

### Neoflux® magnets:

- are 4x more powerful although they are more temperature-sensitive than Ferroxdure magnets.
- for this reason they can be built lighter and more compact
- standard version is deployable to 80° and the special version to 220°
- the value of the magnetic poles > 10,000 Gauss
- appropriate to extract RVS scrapings
- execution: completely in RVS and watertight (IP67); easy to clean
- especially appropriate for the food industry.



Type A Ferroxdure Plate magnet.



Type B Neoflux® Plate magnet.

## PLATE MAGNET IN PNEUMATIC CONVEYING LINE



The velocity of the product is very high in a pneumatic conveying line. For this reason it is necessary to put an extra strong Neoflux® plate magnet in it. The products touch the magnet which firmly holds the iron after that.

## PLACEMENT OF THE PLATE MAGNET



When choosing the right mounting location of a plate magnet the following principle always holds: in a place where the product can make good contact with the magnet. The closer the product flows along the magnet, the higher the effect will be. For the placement of magnets in a fall case Goudsmit supplies mounting plates which can be welded to the socket. The mounting plate is fitted with a hinge and an extractor plate. This simplifies the suspension of the magnet.

## TABLE FERROXDURE PLATE MAGNETS

### Dimensions

There is an optimal proportion between the pole width and the pole height in the magnet. Goudsmit lays these proportions down. The length is variable. Below you can find a table with the standard widths and heights. The thicker the magnet the deeper the extraction field. **Special dimensions are available on request.**

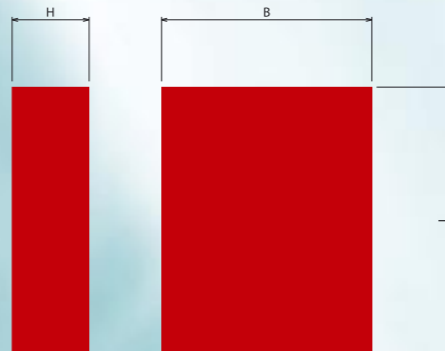
Table Ferroxdure plate magnets

Series	Dimension in mm B x H (L=variable)	Catch field VDE norm	Type
VMF1	102 x 44 mm	65 mm	A
VMF2	152 x 46 mm	90 mm	A
VMF3	195 x 50 mm	40 mm	B
VMF4	204 x 92 mm	130 mm	A
VMF5	304 x 97 mm	165 mm	A
VMF6*	470 x 182 mm	280 mm	A
VMF7*	778 x 312 mm	320 mm	A
VMF8*	946 x 343 mm	400 mm	A

\* = cleaning drawer option possible.

The extraction field is given in accordance with the VDE standard.

This is the distance with which a magnet extracts an iron bar of Ø 15 x 75 mm.



Type VMF1, 2, 4 and 5 plate magnet, of which 1 with key and flange.



Type 6-8 Plate magnet with drawer.



Type VMF3 Plate magnet.

## TABLE NEOFLUX® PLATE MAGNETS



Type VMN1&2 Neoflux® Plate magnet.



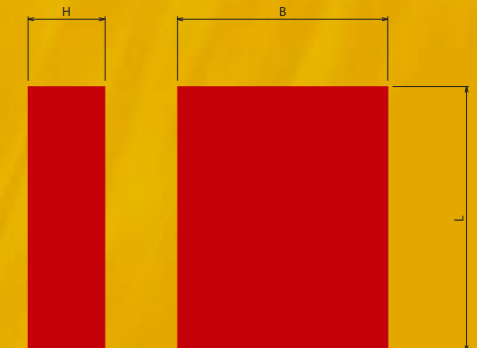
VMN3 Neoflux® Plate magnet.

Table Neoflux® plate magnets

Series	Dimension in mm B x H (L=variable)	Catch field VDE norm	Type
VMN1	102 x 22 mm	40 mm	A
VMN2	204 x 55 mm	180 mm	A
VMN3	160 x 30 mm	120 mm	B

The extraction field is given in accordance with the VDE standard.

This is the distance with which an iron bar of Ø 15 x 75 mm is extracted.



## AUTOMATIC CLEANING

### When iron pollution is high

Before acquiring a plate magnet it is important to evaluate beforehand whether the product contains a lot or only a little iron. A plate magnet is not sufficient if there is a lot of iron as this magnet is quickly saturated and for this reason it needs to be cleaned continuously. Another Goudsmit metal separation system is more appropriate for this. Such system is characterised by an optimal combination of metal separation, low built-in height and fast or automatic cleaning.



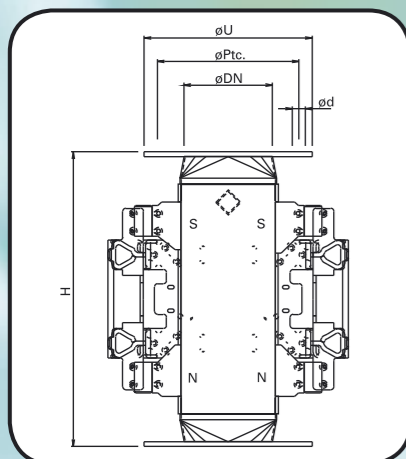
Cleaning by means of a pneumatic cylinder.

## EXTERNAL POLE MAGNETS

External pole magnets are used to extract bigger iron particles. The advantage of this system is that the product can fall through it freely without the development of bridge formation. Besides, this type of magnet can be cleaned quickly. The execution can be done with either ferroxdure or Neoflux® magnets.

### Installation

The external pole magnets' plate magnets are fitted outside of an RVS socket. The magnets attract the iron particles and they stay stuck to the RVS plate. To clean the RVS plate, it must be turned outwards with the magnets attached to it. This way the iron comes out of the product stream. After this the RVS (extractor) plate must be pulled away from the magnet which will result in the magnetic field disappearing and the iron falling off.



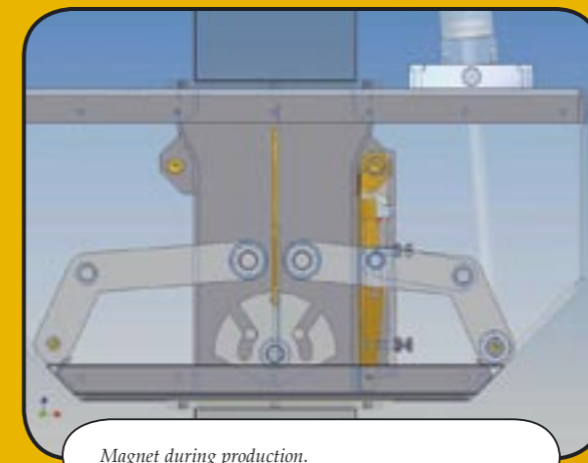
Type	øDN	H	øPtc	Nr of holes	ød	øU	Capacity
BP100	100	400	180	8x	18	220	8m <sup>3</sup> /hr
BP150	150	500	240	8x	22	285	28m <sup>3</sup> /hr
BP200	200	600	295	8x	22	340	70m <sup>3</sup> /hr
BP250	250	700	350	12x	22	395	100m <sup>3</sup> /hr
BP300	300	800	400	12x	22	445	150m <sup>3</sup> /hr

## SELF-CLEANING EXTERNAL POLE MAGNETS

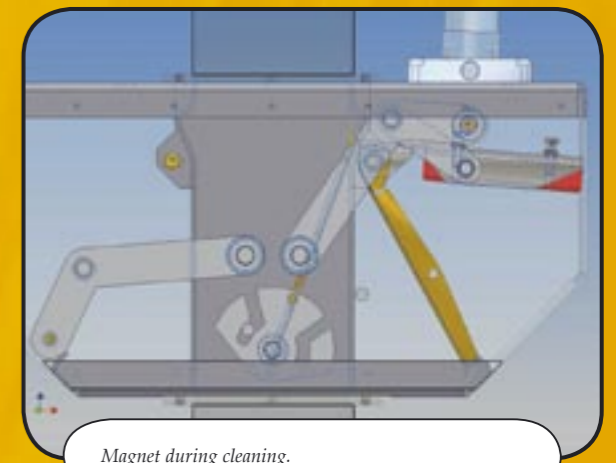
With self-cleaning external pole magnets the magnet can be cleaned without interrupting the product stream. The cleaning principle remains the same as with the normal version; the magnet is removed from the RVS plate against which the iron particles are stuck.



External pole magnet for making rubber granules iron-free.



Magnet during production.



Magnet during cleaning.

### Cleaning process

The external pole contains two magnets. Each magnet is cleaned separately. There is a valve in the middle of the product stream. During the cleaning process of the right magnet the valve closes the product stream for this magnet. The magnet with the extractor plate turns outwards by means of a pneumatic cylinder. This plate is clasped halfway and the magnet continues to turn. The iron comes loose and falls down. The right magnet closes again after which the other side can be cleaned. The self-cleaning external pole magnet is available in 3 standard sizes: Run-in/-out 300 x 400 mm, 300 x 800 mm or 300 x 1000 mm. A 6 bar air connection and a 24V DC signal are necessary for the control.

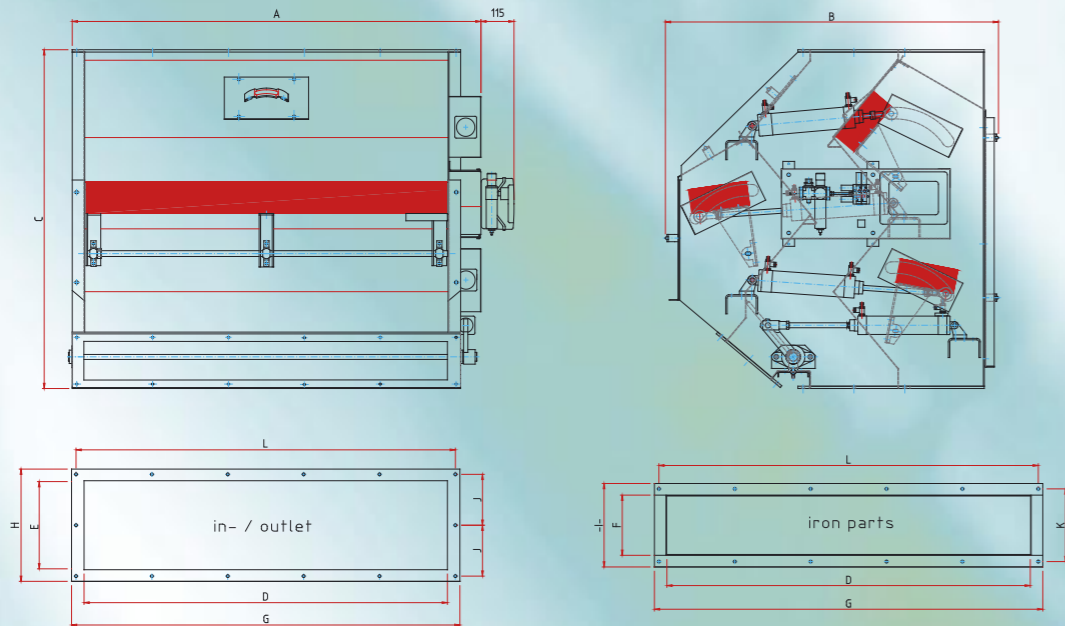
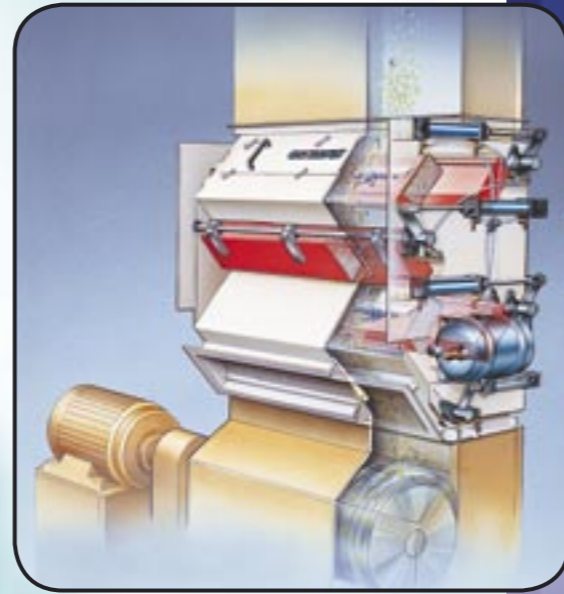
## CASCADE MAGNETS

With a cascade magnet 3 strong plate magnets are connected in series. The product is checked three times in one passage resulting in a better degree of iron extraction. Just like with the external pole magnet cleaning is done by means of pneumatic control. The iron leaves the magnet through an integrated valve box. This type of magnet is often used in the feed industry for the protection of hammer mills.



Left: cascade magnet in operation.

Right: cascade magnet in cleaning position.



Pneumatic cascade magnet with 3 magnets

Type	A	B	C	D	E	F	G	H	I	J	K	L	KG	Cap. T/hour powder	Cap. T/hour granulate
SR.KP.0400	780	750	885	400	200	150	465	265	215	120	190	4*110	240	10-30	15-40
SR.KP.0600	980	750	885	600	200	150	665	265	215	120	190	5*128	280	35-50	45-70
SR.KP.0800	1180	750	885	800	200	150	865	265	215	120	190	6*140	320	70-80	90-100
SR.KP.1000	1380	880	1165	1000	300	200	1085	385	285	175	250	4*264	375	100	140
SR.KP.1250	1630	880	1165	1250	300	200	1335	385	285	175	250	5*261	445	125	175
SR.KP.1500	1880	880	1165	1500	300	200	1585	385	285	175	250	6*259	515	150	225

## ELECTRO BLOCK MAGNETS

The big advantage of electro block magnets is that you can switch them on and off, the disadvantage, however, is their less compact form in comparison with the permanent magnets. To get a powerful magnetic field the electro coil must have enough space. Such electro block magnets are mainly applied above a conveyor belt, provided that the extraction field depth is higher than 350 mm. A permanent block magnet is an excellent alternative if the extraction field depth is lower than 350 mm. For more details regarding electro block magnets we would like to refer to the brochure "Magnets for a cleaner environment".



Table Electro block magnets

Type	Sizes			Power Watt	Voltage Volt	Weight kg	Catch field depth mm	Eyebolt standard mm
	A (mm)	B (mm)	C (mm)					
EP3	500	440	360	1100	350	55	180	M16
EP4	600	530	380	1500	540	55	200	M16
EP5	700	620	380	2000	700	110	240	M20
EP6	800	700	440	2700	950	110	280	M20
EP7	900	800	440	3700	1200	110	320	M20
EP8	1000	940	480	5500	1600	110	360	M20
EP9	1300	1000	400	7000	2000	220	400	M24