

METAL DETECTORS

... SEE THE UNSEEN



METAL DETECTORS FOR THE FOODSTUFFS INDUSTRY CONVEYOR BELTS



Cleaning using high pressure and steam.



Metron complete with conveyor belt. In case of detection the belt will stop



Metron complete with chain conveyor and ejector mechanism. In case of detection a cylinder pushes the product from the belt.

Magnets give you the best possible protection against unwanted metals. A magnet can remove very fine iron particles (of 30 microns and more) and also stainless steel scrapings from products. If you also have non-magnetic particles in your product then a magnet will not work. A metal detector is needed for this. It is for this reason that Goudsmit has various different metal detectors in its range. These detectors are, in combination with the magnets, intended for installation in free-fall lines, pressure lines or for conveyor belts. The model varies in accordance with the industry in question and the following models can be supplied:

Conveyor belts

The METRON detector is the most suitable for the removal of pieces of metal from products which are transported on a belt. The detector is made entirely of stainless steel and can be cleaned using high pressure.

If a metal particle passes the coil then the detector will recognise it. It gives an acoustic signal and initiates an action. This action may be to stop the belt or to activate an ejector mechanism used to eject the metal in question. There are different ejector systems depending on the product. The various possibilities are shown below in diagram form.

Turnkey

Quite a lot of expertise is required for the installation of a metal detector. The best results are obtained if the whole belt, complete with the detector and the ejector mechanism, is supplied as a single whole. The operation of the detector consists of a combination of correct installation linked to a good ejector mechanism. Correct installation prevents static charges, vibrations and fault reports.

Ausscheidesysteme Reject systems



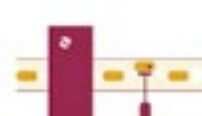
Telskopübergabe
Telescoping transfer conveyor



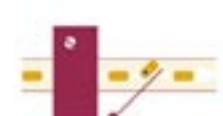
Wippenband
Swing gate conveyor



Ausblasvorrichtung
Air jet reject



Pusher
Pusher



Schwenkarm
Diverter arm

METAL DETECTORS FOR THE FOODSTUFFS INDUSTRY FREE-FALL TRANSPORTS

Free-fall transports

Quicktron metal detectors remove pieces of metal from products flowing through a free-fall line. The signal from the detection coil is linked to an ejector flap which automatically ejects the piece of metal.

The *Quicktron* metal detector can be supplied as standard for an inlet varying from \varnothing 50 mm to \varnothing 400 mm. It is important that the pass band is not too large. The greater the pass band the less the basic sensitivity is. Assembly of these systems can be done in-house. The detection signal is in fact already linked to an ejector mechanism where account has been taken of static charges and any vibration. Assembly consists of connection of the inlet and outlet flanges and provision of air and electrical connections.

All-metals-catcher

If you expect either a lot of metal contamination or metal contamination in the form of very small pieces then it is advisable to make use of a magnet before the detector. For milk powder (see above right) a self-cleaning clean-flow magnet is used but other magnet systems are also suitable for this.



*The All-Metals Catcher: a self-cleaning rotating magnet with a Quicktron metal detector. This system is used under a silo just before the loading of the truck.
Product: milk powder.*



Standard Quicktron metal detector.



Quicktron metal detector with Neoflux® Clean-Flow magnet. This can be cleaned manually and acts as a pre-separator.

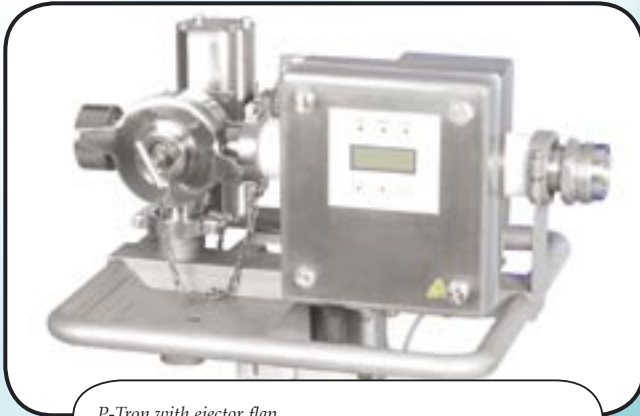
METAL DETECTORS FOR THE FOODSTUFFS INDUSTRY TRANSPORT UNDER PRESSURE

Transport under pressure

If the product is transported under pressure then the ejector flap should bring out the metal without influencing the pressure or interrupting the production process. The P-tron was developed for this purpose. A typical application is the detection of pieces of metal in meat. Here too, the detection coil is linked to an ejector mechanism. If metal is detected then the flap turns through 90° so that the product quickly disappears from the product flow. This ejector mechanism is constructed in such a way that it is easy to clean.

All-metals Catcher

As meat is damp and salty it has a great product effect. This has a negative effect on the sensitivity. It is for this reason that a magnet filter is often placed ahead of the metal detector. The magnetic bars are extremely strong and can also trap stainless steel scrapings.



P-Tron with ejector flap.



Detection of meat.



Metal detector with magnet filter (all-metals catcher).



Magnet as pre-separator.

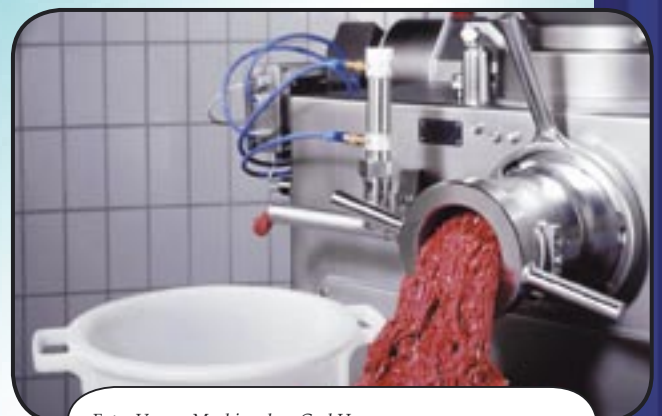


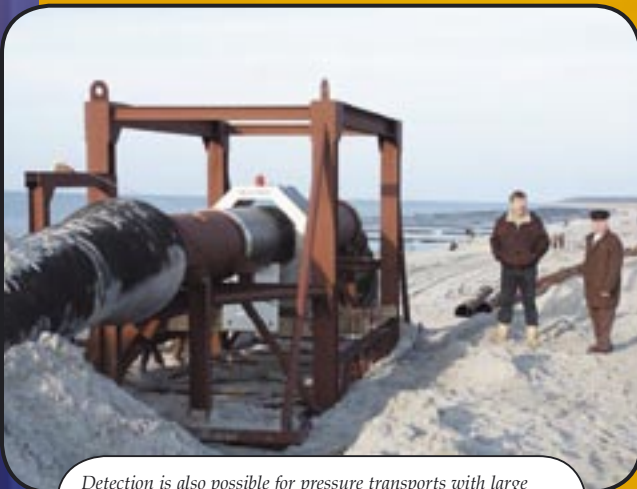
Foto: Vemaq Maschinenbau GmbH.

METAL DETECTORS FOR THE NON-FOOD (RECYCLING) INDUSTRY

The same technique applies in principle for the non-food (recycling) industry as for the foodstuffs industry. The construction is however somewhat sturdier and not everything is made of stainless steel. Typical applications here are, for example, the protection of crushers or shredders or the removal of the last particles of metal in waste wood before it is used in the chipboard industry. Here you can see some photos of existing installations.



Detection of closed, 45 kg bags. In case of detection the belt will stop.



Detection is also possible for pressure transports with large pipelines. In the photo above they are searching for the remains of ammunition which are sucked in when spouting up sand onto a beach.



The Quicktron metal detector has been situated here in a free-fall line for the processing of demolition wood. This detector serves as an extra check before the wood is processed in the chipboard industry. This guarantees a product which is 100% metal-free. A top belt magnet first makes the wood completely iron-free. This prevents unnecessary switching of the flap and the associated product loss.



Protection of cylinders for the manufacture of synthetic fibres.



A top belt magnet serves as a pre-separator.

METRON / QUICKTRON CONTROL

The detection coil is controlled by the advanced AMD electronics which are continually updated to the latest status of the technology. The operators can operate and control the systems easily because the operating language is English. A brief summary follows of the major standard functions:

Touch screen control panel maximum information in combination with rapid and easy operation. Clear display of texts in the screen. Clear operation and continuous display of the detection signal.

System with 1 printed circuit board with built-in power supply for the best possible reliability and ease of operation.

Fully-automatic elimination of product effect by actual product parameter. Measurement possible after just one measurement cycle.

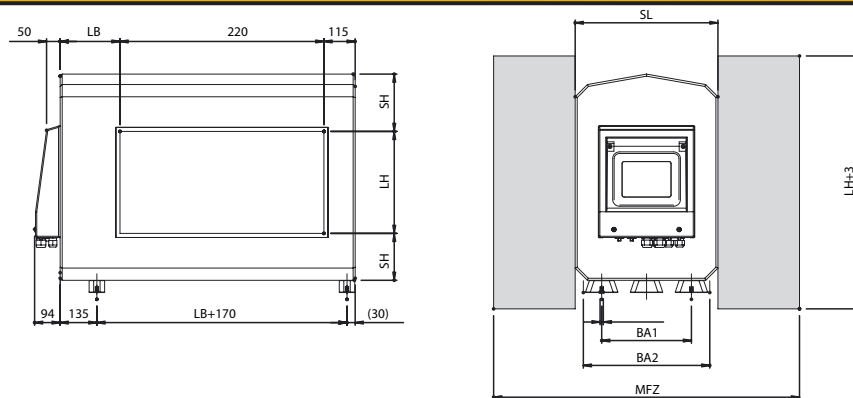
Backup data in the event of power failure prevents the loss of the stored data in the event of power failure. All product parameters and the various specifications (including delay and time duration) are stored in memory. It is also possible to enter product names.

ALL THE DETECTORS CAN BE CLEANED USING HIGH PRESSURE AND STEAM!

Controlling the detector remotely or in a network. Everything is possible! Various software packages can be bought as options so that, using a CAN bus plug, you can connect a network of 125 metal detectors / separators. Using a central PC you can operate the detectors completely remotely. Our technical services department can also check or update the detector via a modem.

Serial data communication via a RS 232, 422, 485 connection with a local or central printer (maximum cable length up to 1.2 km depending on type). The protocol complies with the ISO 9000 HACCP standards. Bi-directional data communication with QS or PC systems and remote control of the metal detector is possible (software packages are optional).

METRON COIL MEASUREMENT



$$MFZ (\text{metal not in motion}) = SL + LH^{1)} \quad MFZ (\text{metal in motion}) = SL + 3,5 \times LH^{1)}$$

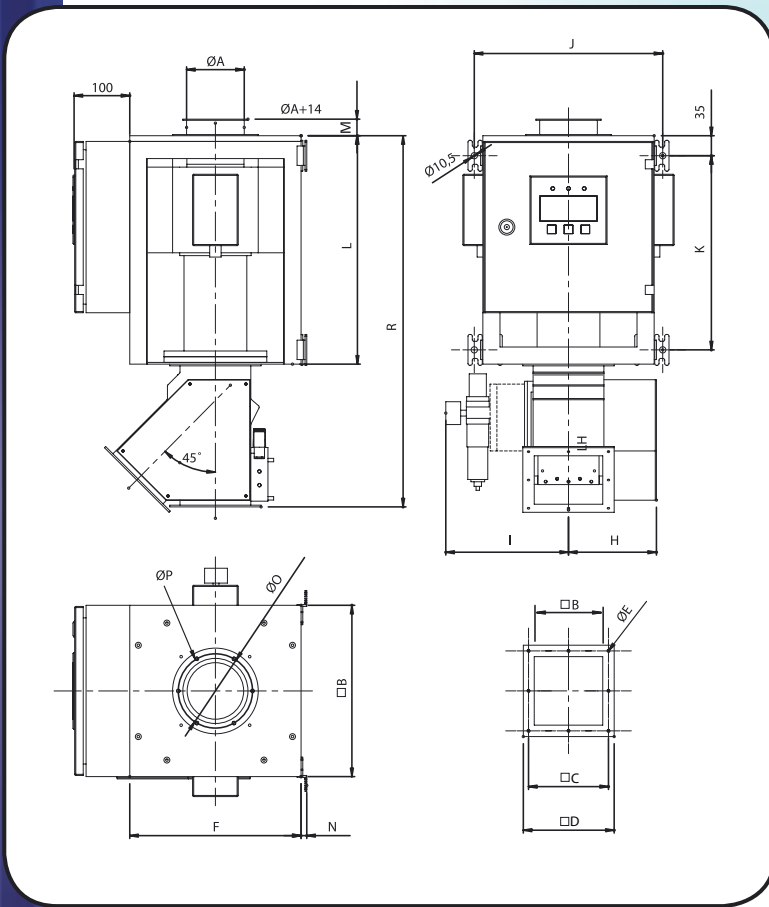
¹⁾ the metal-free zone. Should be provided as an orientation aid (minimum values which can be exceeded!) and should be discussed separately for each project.

All dimensions in mm.

LH Pass band height	SL Coil width	SH	BA 1 Tapped hole distance	BA 2 Tapped hole distance	A Number of tapped holes per coil	X Measurements
50	260	150	130	-	4	18
75	260	130	130	-	4	18
100 - 150	260	115	130	-	4	18
175 - 200	300	115	170	-	4	22
225 - 250	350	115	220	-	6	26
275 - 300	400	115	230	-	6	27
325 - 350	450	115	280	-	6	31
375 - 400	500	115	110	330	8	36
425 - 450	550	115	190	380	10	40
475 - 500	600	115	215	430	10	44
550 - 600	650	115	240	480	10	49

TECHNICAL DATA QUICKTRON

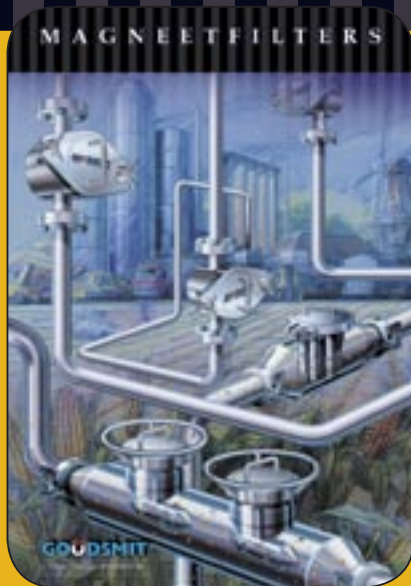
B: Inlet/Outlet
R: Overall height



$\varnothing A$	B	C	D	E	F	G	H	I	J	K	L	M	N	$\varnothing O$	$\varnothing P$	R	Weight
50	□ 70	□ 86	□ 100	8xM5	220	300	100	180	250	260	310	-	-	$\varnothing 72$	4xM 5	490	25 kg
70	□ 70	□ 86	□ 100	8xM5	220	300	100	180	250	260	310	-	-	$\varnothing 130$	4xM 5	490	25 kg
80	□ 120	□ 140	□ 160	8xM5	300	300	154	215	330	340	400	35	10	$\varnothing 108$	6xM 5	650	35 kg
100	□ 120	□ 140	□ 160	8xM5	300	300	154	215	330	340	400	28	10	$\varnothing 130$	6xM 5	650	40 kg
120	□ 120	□ 140	□ 160	8xM5	300	300	154	215	330	390	450	28	10	$\varnothing 150$	6xM 5	700	45 kg
150	□ 200	□ 225	□ 246	8xM5	370	350	203	255	380	405	470	36	5	$\varnothing 180$	6xM 5	800	55 kg
200	□ 200	□ 225	□ 246	8xM5	430	430	203	255	460	605	670	37	5	$\varnothing 230$	6xM 5	1000	65 kg
250	□ 300	□ 325	□ 360	8xM5	530	530	322	180	560	605	665	48	5	$\varnothing 280$	6xM 5	1200	130 kg
300	□ 300	□ 325	□ 360	8xM5	630	630	322	180	560	805	865	50	5	$\varnothing 366$	6xM10	1400	160 kg

All dimensions in mm.

Goudsmit Magnetic Systems also manufactures:



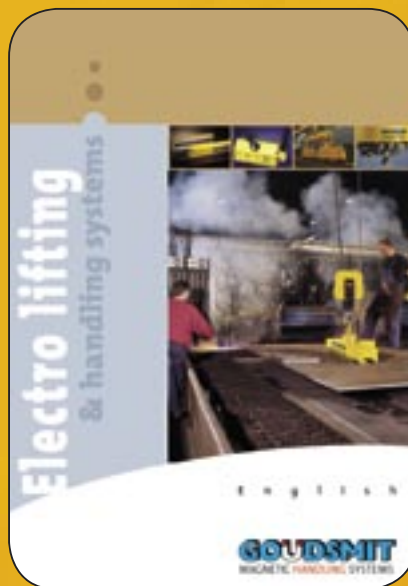
Magnet filters: suitable for the removal of iron particles from liquids and powders which are transported under pressure.



Clean-Flow magnets: serve to remove iron from (sticky) powders in the bulk, foodstuffs, chemical, ceramic and plastics industries.



Magnetic conveying systems: conveying of metal products and packaging.



Electro lifting magnets: they are used to lift heavy metal plates, tubes and structures.

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.



ISO gecertificeerd:
Nr. 653438

GOUDSMIT
magnetic systems