GOUDSMIT MAGNETICS

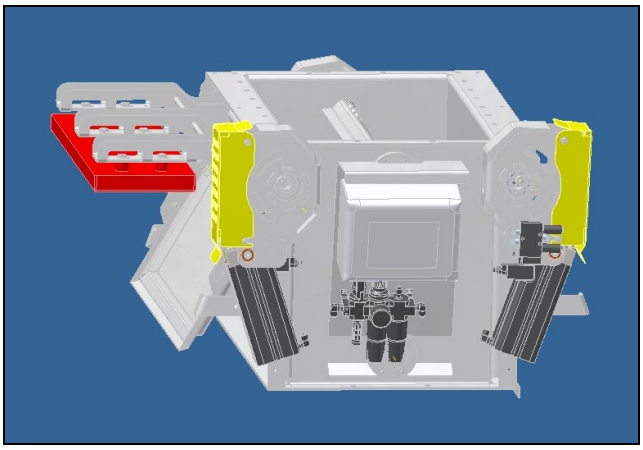
User Manual

External pole magnet, series SBPx....

- Fe separator by permanent magnetic force -

☺ Suited for removal of ferromagnetic (Fe) parts out of powders and granulates

☹ Not suited for extremely bad flowing and or sticky products



The descriptions and pictures in this manual, used for explanation, may differ from your execution. We have enclosed the as-built drawing of the delivered article.

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CE

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Versions overview of standard manual

Version	Date	Description
1.0	05-2000	First saved digital version of the English version of the user manual
1.1	???	???
1.2	11-2001	???
1.3	01-2004	Complete renewed version of the manual.
2.1	10-2007	1. Revisions page added. 2. ATEX remarks added to pages 7,8 , 9, 16, 17 3. Texts iron exchanged by ferromagnetic / Fe parts 4. Surrounding temperatures changed tot -20 to +40°C
2.2	11-2008	AUTO type external pole added to manual (pages 13-14-16-19-20-23)
3.0	02-2010	Specifications and declaration of conformity separated from the manual

Introduction

Read this manual and make sure that you fully understand its contents before commissioning and operating the machine.

If you have any queries or require further explanation regarding any subject related to the machine, please do not hesitate to contact **GOUDSMIT Magnetic Systems B.V.**

The user manual can be ordered together with the device description and/or the article number as well as the order number (ORxxxxxx).

- This manual and the declaration by the manufacturer are part of the machine.
- They must remain with the machine, even if it is sold.
- The manual must be made available to all operators, service technicians, and others who work with the machine throughout its life cycle.

List of contents

General

This user manual contains information for the correct operation and maintenance of your device. It also contains instructions for avoiding possible injury and serious damage and it allows a safe and as trouble-free functioning of the product as possible. Read this manual thoroughly before putting the device into operation, familiarise yourself with the operation and control of the device and follow all instructions precisely.

- *The data published in this instruction manual is based on the available information at the time of delivery. This is issued subject to later amendment.*
- *We retain the right to amend or modify the construction and/or model of our products at any time whatsoever without any obligation to modify any previously supplied products accordingly.*

Ferromagnetism

The working principle of the device rests on (Ferro)magnetism.

Ferromagnetism is the basic mechanism by which certain materials such as iron cobalt and nickel can get magnetized when exposed to an externally applied magnetic field. Materials that remain magnetized after the external magnetic field is removed, are called permanent magnets. Most magnetic materials lose their magnetism after the external magnetic field is removed. Most alloys of iron, cobalt and nickel are magnetic. However, some stainless steel alloys like AISI304 or AISI316 are only slightly magnetic.

Because in most cases it will be Fe parts that will be Ferro-magnetically influenced, we will use the term ‘Fe’ in this user manual when we mean ferromagnetic material

Conditions of supply and guarantee

The conditions of supply are the **"General Conditions for the supply and erection of mechanical, electrical and electronic products" (SE01)**, published by ***Orgalime***, in Brussels.
These conditions can also- if desired – be requested by writing to Goudsmit Magnetic Systems B.V., as also mentioned in our written quotation.

The guarantee prescriptions are mentioned in these conditions

The guarantee on your equipment will be void if:

- Service and maintenance are not performed in accordance with the instruction manual or by servicemen who are not especially trained to do the work. We strongly recommend that specific magnetic service and maintenance be carried out by Goudsmit personnel).
- Modifications are made to the equipment without our prior written permission.
- Non-original parts or non 100% exchangeable parts are used.
- Lubrication products other than those prescribed are used.
- The equipment is used injudiciously, incorrectly, negligently or not in accordance with its intent and/or purpose (see chapter "Intended use / user instructions").

All parts that are subject to wear are excluded from the guarantee.

Remaining remarks / warnings

- Use the device only for the application for which it has been designed (see chapter *"Intended use / user instructions"*).
- Use the device only when it is in technically perfect condition, and ensure that all protective hoods or inspection covers, including all safety circuits, have been fitted and installed in the correct manner.
- Ensure that device maintenance is appropriate and in accordance with the instructions provided in this user manual.
- Any eventual faults, in particular those that may influence safety, should be attended to immediately and remedied before renewed operation. Should you, after estimating the risks of an unsolved fault, still think it is safe to keep the device into operation, then warn the operators and maintenance staff of these faults and the danger(s) caused by these faults.

Delivery

General

Check the shipment immediately on delivery for:

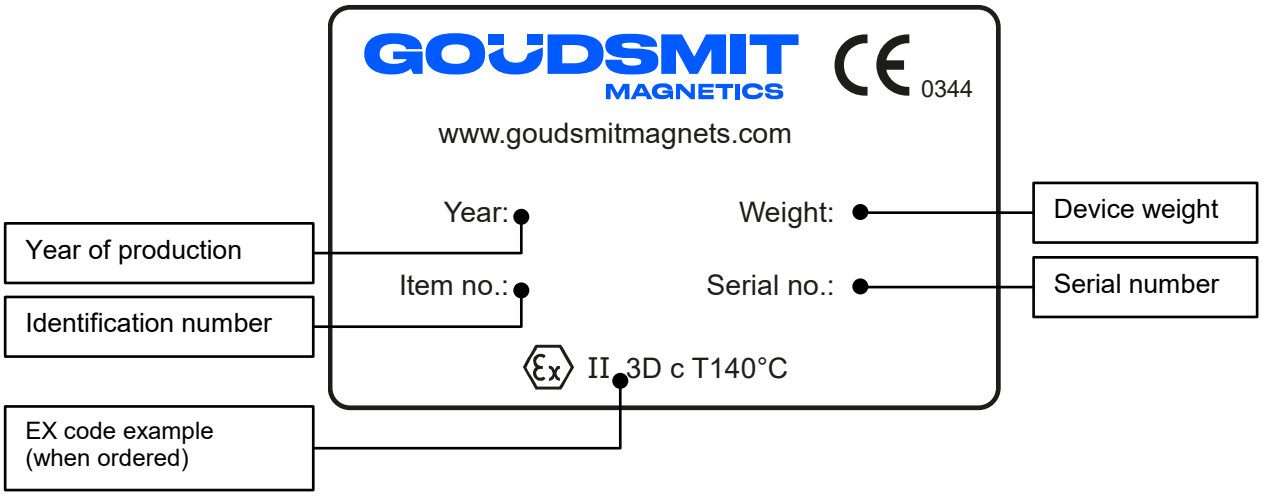
- Possible damage and/or shortcomings as a result of transport. If so, ask the transporter to draw up a transport damage report.
- Completeness of the delivery/deliveries, the absence of anything (additionally) ordered.

Always immediately contact **GOUDSMIT magnetic systems** in the event of any damage and/or mistaken delivery.

Identification plate

On the device you will find an identification plate as pictured below. **Information on this plate is of great importance in case of service**. That is why we advise to maintain this plate on the device at all times. Ensure that it is always legible by cleaning regularly.

Don't forget to make note of both the Serial and the Identification number in case of breakdowns or delivery of spare parts.
If your identification plate is damaged, contact us and we will send a new one as soon as possible.



Description ATEX certification

If the device is ordered for use in an explosive (dust) zone and with ATEX certification, then a Ex marking is added to the identification data which describes the category to which the device complies:

- Code example: Ex II 3D c T140°C
- Explanation:

  II ➔ explosion group (I is underground mining, II is other)

  3D ➔ Category (1 = very high, 2 = high, 3 = normal) (D = dust)

  Zone (20, 21, 22) (zone covered by ATEX)

  c ➔ Type of explosion protection used by Goudsmit

  T140°C ➔ Maximum permitted surface temperature

  If the device complies to category 1D or 2D, then the name and number of the certifying entity are also added to the identification plate, as also the certification number of the device.

The final ATEX classification of the composed apparatus can be lower than the ATEX marking indicated on the main identification plate, if the mounted parts have a lower ATEX marking.

ATEX explosive zone measures

- If the device has been ordered for use in a potentially explosive area, make sure that no higher surface temperature arises then permitted by ATEX.

  The ATEX marking on the Goudsmit identification plate only applies to the product produced by Goudsmit Magnetic Systems B.V.

  Make sure no particles > 10 mm are present in the product flow.
  These can damage the magnet or extractor bars or cause impact sparks.
  If necessary install a mechanical filter (sieve) before the separating equipment!

- The ATEX certified magnetic device requires additional purchase parts to be certified to the ATEX Directive. This includes control units, connection box(es), switch(es), sensor(s) and pneumatic parts, etc. Make sure that these are fitted by qualified personnel!
- If the device is placed in storage or has a longer standstill, make sure the device is emptied and cleaned.
- The device must be grounded, if a gasket is used between the device and the larger installation. Attach a metal strip between the housing of the device and the installation, to make sure the device is grounded.
- All screw connections inside the device must be secured against loosening.

  The ATEX purchase parts are provided with their own ATEX markings.

Safety

Regularly check that all warning pictograms are still present and legible, and clean if necessary. Make sure that new pictograms are applied at their correct locations if they have been lost or damaged.

General

The device is provided with safeguards where necessary. Make sure every person who comes in contact with the device, wears adequate personal protection (overalls, safety glasses, hearing protectors, helmet, steel-toed safety shoes etc.).
Areas of the device considered dangerous are marked with warning pictograms.
If the device remains easily accessible to persons, then extra safety precautions (e.g. fencing) must be installed. When safeguards are not possible, make sure clear instructions are given to people using the device.

Danger of dust explosion

If this device is made according to an EX dust category (1D/2D/3D, acc. to ATEX equipment directive 2014/34/EU) it can accordingly be used in a dust zone (20/21/22, acc. to ATEX workplace Directive 99/92/EC). The Ex category is then described on the identification plate.

! *Make sure that the device complies to the correct explosion category*.

Danger – dust explosion!
(no sticker on device)

Also check if **the identification plates of mounted parts** show the correct Ex-category for the Ex zone in which the device will be used.

Danger of magnetic field

The magnets generate a powerful magnetic field that strongly attracts ferromagnetic (Fe) materials. Always take into account that these materials may suddenly be drawn towards the magnet, very powerfully. This applies to steel workbenches and steel tools, but also to Ferromagnetic materials carried on your person, such as coins in your wallet or your keys. Make use of non-magnetic tools and workbenches fitted with a wooden worktop and preferably a non-Fe frame (for instance stainless steel).

! Be aware that Ferromagnetic objects can be attracted if you are closer than **0.2 meter** to the outside of the equipment and within **0.5 meter** from the magnet plates when the equipment is opened

Projectile and attraction risk

! The magnetic field around the equipment can interfere with functioning of pacemakers and other active implanted devices. Users of such devices must always maintain a safety distance of **1.5 meter**.

Prohibited for people with pacemakers!

! Magnetic media and sensitive items, like electronic devices or watches etc. may be damaged if they enter the magnetic field. Don't bring these objects and within **0.5 meter** distance to the equipment to prevent damage.

Prevent damage to sensitive items

Device description

Intended use / user indications

Products

To be used for separating ferromagnetic (Fe) particles out of streaming powder and granular materials. External pole magnets are specially suited for separating relatively large Fe particles.

Designed for use in material streams like cattle food, plastics, chemical, pharmaceutical, sand, grinding & cement and ceramic industries, etc.

Not to be used in (moist) sticky and/or badly flowing material streams.

Fe parts

Can separate Fe particles of **50 µm** and larger out of material streams when (standard) Neoflux® magnets, and **0.5 mm** when ferrite magnets are used, or other (see special specs then) when another type of magnets is used.

Temperatures

Suitable for outside temperatures of -20°C to +40°C and product temperatures up to +80°C with (standard) Neoflux® magnets, +100°C with (standard) ferrite magnets, or +200°C with special magnets.

The magnet is to be protected against higher temperatures than prescribed, because the magnet might **lose magnetic force permanently** when exposed to high temperatures

Air pressure product channel

The (relative) over-pressure inside the material channel has to be below 0.2 bar.

The (relative) under-pressure inside the material channel has to be below 0.5 bar.

Free space

Make sure that there is approximately 0.5 meter of free space around the external pole magnet to perform and ease the inspection and maintenance operation.

Vibrations

The magnet is to be protected against strong external vibrations, because the magnet might **lose magnetic force permanently** and or the brittle ceramic magnet material might break.

The external pole magnet does not create vibrations by itself.

Cleaning / Fe disposal

Minimum 2x per day cleaning (Fe disposal) of the device – less if proven enough and more if proven necessary - is advised for an optimal magnetic separation and to prevent Fe particles accumulation against the magnet and the problems that can be caused by that. Clean magnets have the best separating result. So, make sure you clean a more often than you suppose to be necessary, to achieve a satisfactory result of the magnet device. For dirt cleaning: see chapter *Maintenance*.

Deliverable specials

High product temperatures

For high product temperatures there is the possibility of using other magnet material than the standard Neoflux® or ferrite magnets inside the plate magnets.

Abrasive products

If you have an abrasive material stream, we can supply the magnet and or extractor plates and or inside housing with a protective coating, like for instance a tungsten carbide coating.

Use in FOOD product flows

The standard model for the Pharmaceutical and Food Industry is fitted with Neodymium-Iron-Boron (Neoflux®)-magnets, which capture very fine Fe particles. Besides that the casing is then completely smooth and the welds are finally processed in a way that no bacteria culture medium can possibly spring up. The material channel (or even complete housing + extractor plates) can be delivered in gap-free SS AISI304 or AISI316, or in combination with other – for instance prescribed or delivered by customer – food improved materials. Surface treatments like electrolytic polishing, staining, etc. are naturally possible.

ATEX

The external pole magnet can be delivered suited for ATEX II 3D (dust zone 22)

When components are built on or built in, that carry their own identification plate, then these components can - as a following of this - make the device unsuited for use in zone 22. See specification sheet and or identification plate(s) for the right Ex codes.

It is however your own responsibility to take the right precautions when using the device in zone 22, like in-time cleaning to prevent for thick accumulating dust layers, and suitable grounding measures.

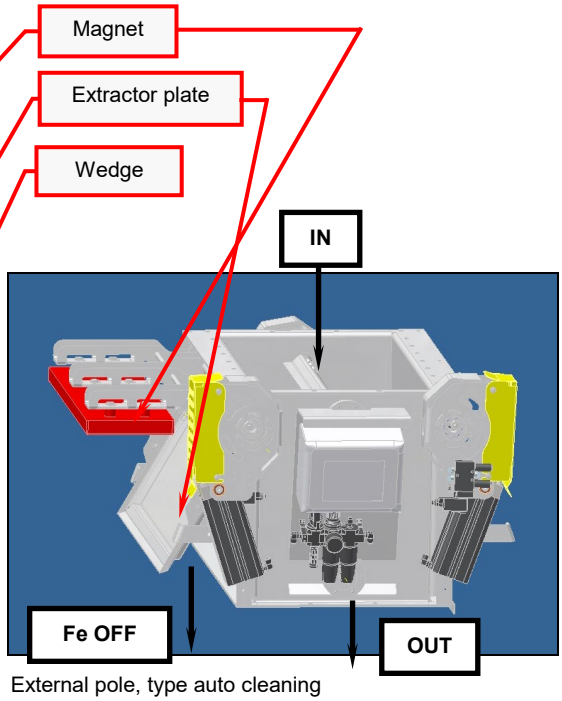
Read this manual thoroughly for all ATEX measures.

When you desire an ATEX declaration coming with the device, that has to be especially ordered. Extra price will be charged!

Working principle

The external pole magnet functions as a separator of ferromagnetic (Fe) particles out of a passing material stream.

Photo: External pole magnet, type fast cleaning



External pole, type auto cleaning

Brochure: http://www.goudsmit-magnetics.nl/fileadmin/goudsmit/download/folders/systems_en_buitenpoolmagn.pdf

- The **material stream inlet** is bolted to your channel, where the raw product goes inside.
- A **guide strip** in the inlet flange directs the material stream towards the magnets.
- In each of the 2 **magnet units** of the external pole magnet a **permanent magnet plate** is placed, which creates a double and deep magnetic field. Iron and other Fe (ferromagnetic) particles will be attracted by the magnets and thus be separated out of the passing material stream and will cling onto the extractor plate, that is placed against the magnet plate.
- On each extractor plate one or more **wedges** are welded when necessary. Under these wedges the separated Fe parts are safer against being swept off by the passing material stream.
- The **material stream outlet** is bolted to your channel where the cleaned material leaves the external pole magnet for further processing.
- By turning the **magnet unit** (as a window) the operator can clean the magnet of separated Fe particles. This can be done by turning the **extractor plate** away from the magnet plate, after having first completely opened the door.➔ see chapter *Magnet cleaning / Fe disposal* below for more detailed description of Fe disposal actions.

Magnet cleaning / Fe disposal cycle

Minimum 2x per day cleaning (Fe disposal) of the device is advised for an optimal magnetic separation and to prevent Fe accumulation on the magnets and the problems that can be caused by that. Clean magnets have the best separating result. So, make sure you clean more than you think is necessary, so to achieve a satisfactory result of the magnet device. Clean more often than twice a day if necessary and less often when proven possible.
For dirt cleaning: see chapter *Maintenance*

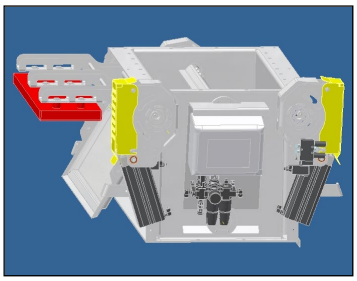
Pay attention to personal dangers / wear protective clothing, glasses, shoes and hand gloves:

Working order fast cleaning type external poles

1. Stop product flow,
2. Loosen fasteners that clamp the magnet units against housing,
3. Turn magnet units as far away from material channel as possible,
4. Turn extractor plates as far away from the magnets as possible,
   Dispose the Fe particles that will now fall off the extractor plates,
5. Sweep with a brush of soft cloth and or blow clean the extractor plates (not in the direction of the material channel or the magnets!),
6. Clean the magnet's magnetic side if necessary (for.example with a soft cloth or a suitable cleaning fluid).
7. Turn magnet units back against housing.
8. Tighten the fasteners so magnet units close material channel without leaving open gaps.
9. (Re-)Start the material stream.

Working order auto cleaning type external poles

1. Give start signal to control unit for Fe disposal cycle (inlet i5 of LOGO!);
   - Flap moves to right side.
   - Right magnet unit turns away from housing – extractor plate follows partly.
     Dispose the Fe particles that will now fall off the extractor plates.
   - Magnet and extractor plate move back against housing.
   - Flap moves to left side.
   - Left magnet unit turns away from housing – extractor plate follows partly.
     Dispose the Fe particles that will now fall off the extractor plates.
   - Flap moves to neutral position side (middle position).



☹ *Unfortunately some material that got stuck in-between and under separated Fe parts will fall off with it while cleaning the magnet units and cause some "material loss".*

Construction

Manual fast cleaning type external poles

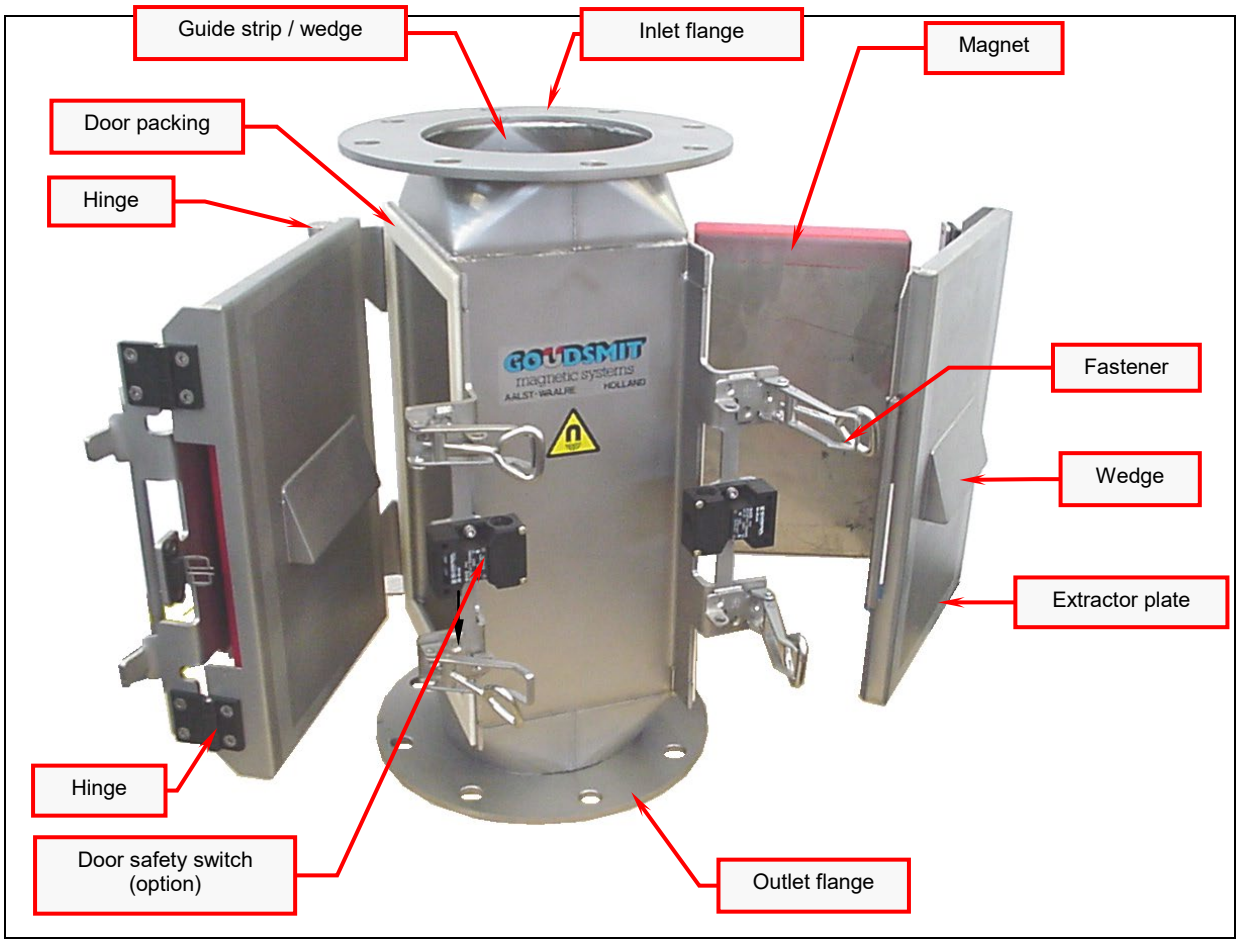
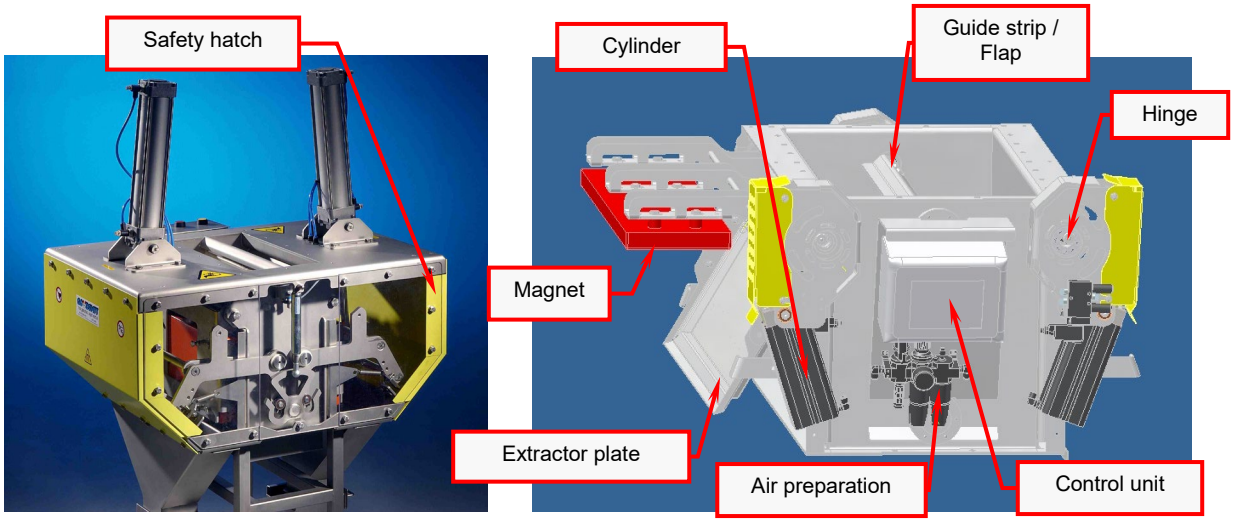


Photo: manual fast cleaning external pole magnet in open position

The external pole magnet, manual fast cleaning type, is a complete SS casing with:

- 2 **flanges** for easy mounting to your product channel.
- 2 **plate magnets**, protected against damage by strong SS casings.
- 2 **extractor plates** are mounted in front of the magnets at the product side. A **wedge**, welded onto the extractor plate provides better holding force for caught Fe particles.
- A **guide strip (wedge)**, welded in the inlet opening of large external pole magnets, helping to direct the product flow towards the magnet systems.
- **Fastener clamps** to clamp the magnet units against the housing.
- The magnet systems are mounted to the housing by **(heavy-weight) hinges**. The extractor plates are mounted to the magnets by **(light-weight) hinges**.
- **Soft packing** makes sure that the product channel is closed dust-tight.
- Optional **door safety switches** signal the doors being open.

Auto cleaning types external poles



The external pole magnet, manual cleaning type, is a complete SS casing with:

- 2 **flanges** for easy mounting to your product channel.
- 2 **plate magnets**, protected against damage by strong SS casings.
- 2 **extractor plates** are mounted in front of the magnets at the product side. A **wedge**, welded onto the extractor plate provides better holding force for caught Fe particles.
- A **guide profile / Top beam** is mounted in the inlet opening of AUTO external pole magnets, helping to direct the product flow towards the magnet systems. This profile also protects the flap underneath.
- A **flap** is mounted underneath the top beam. This flap is in the middle (neutral position) while the material stream is fully passing. This flap moves to the side of the magnet that is about to be cleaned of separated Fe particles during a Fe disposal cycle.
- **Safety hatches** can be mounted over the magnet units to protect persons against the moving magnets during Fe disposal cycles.
- The magnet systems are mounted to the housing by **(heavy-weight) hinges**.
- **Soft packing** makes sure that the product channel is closed dust-tight.
- **Pneumatic cylinders** provide the power for the movement of the flap, the top beam and the magnets; **regulation valves** on all cylinders can be used to increase / decrease the air volume flow IN/OUT the cylinders.
- A **control unit** is mounted against the housing to generate the right Fe disposal cycle when a Fe disposal signal is given to it.
- An **air preparation unit** is mounted for having the right pressurised air.

Installing

Placing, transportation and moving of the device

The external pole magnet always has to be lifted at the inlet flange!
Mount lifting eye-bolts on the threaded holes for this purpose, so the flange will not be damaged.

- Use only lifting/hoisting and transport equipment that is in good condition and never exceed the safe working load of the equipment being used.
- Pay attention to the weight of the device. Your input and output channels must be able to support this weight. If not strong enough, you should strengthen these before you start installing!
- Work safely, ensure sufficient working space and use stable and reliable scaffolding, ladders and other auxiliary equipment to ensure that the machine can be installed without risk.
- Close the door properly door to avoid centre gravity shifting during the lifting process. Bolt the in- and outlet flanges tidily to your channel construction to prevent leakage during operation.
- Do not reduce the tension on the lifting chain/belt while positioning, as the external pole magnet may fall down to the side.

Only open the magnet unit after completely having finished the installation process, while opening the door before that moment causes the centre gravity to shift towards the moving door and thus unequal weight distribution!

When the device has electrical components:

Electrical connections general

Make sure that the electrical power supply is switched off while you work on the device.

Make sure that all electrical connections are made by qualified personnel and conform to all the applicable standards. Check that the device is suitable for connection.

Check all connections regularly!

Electrical connections & EX

If the device is placed in an Ex zone, everything you add or change to the device's electrical installation must be executed and documented according to the regulations for the specific Ex zone.

Gasket material / grounding

To prevent the build-up of static electricity, make sure there is metal bridge between the magnetic device / product channel and the installation. The completed installation must also be grounded.

When the external pole is an AUTO cleaning type, then the standard delivery is including a LOGO! control unit. Underneath a short description of this unit:

Siemens LOGO!

- The **Siemens LOGO!-control unit** initiates the movements of the cylinders.
- The LOGO! is a simple “PLC” module of Siemens. The LOGO! actuates the 3 solenoids. The solenoids control the movement of the cylinders that move the flap, the top beam and the magnets. (A diagram is added to the technical documents).

Connecting the LOGO!

Electrical drawings and LOGO! scheme are added to the technical documents.

- Connect 24VDC on **L+** and **M** to ground.

If you do not have 24VDC power supply available, but you do have 120/230V-50/60Hz, than you can use power supply unit (Power 1.3) that is mounted next to the LOGO!. It can transform your signal to 24VDC. In this case connect power to **L1** and the neutral to **N**.

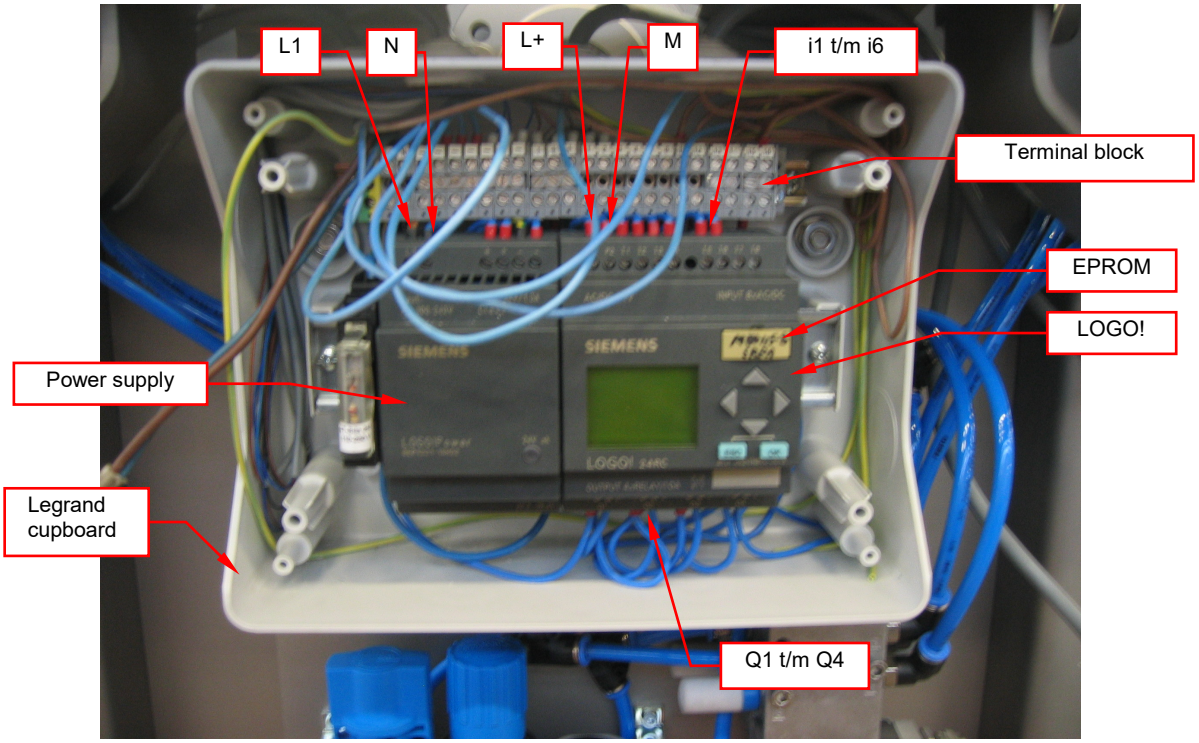


Photo: Siemens LOGO! with 24 VDC power supply in Legrand box

Input:

Inputs read the sensor positions and the Fe disposal start pulse by user.

Output:

Outputs Q1 to Q4 energise the solenoid that make the cylinders move.

Standard LOGO! program

The logic program of the LOGO! secures how and when the cylinders will move.
(LOGO! diagram is added with Auto-cleaning types outer poles).
The logic program is also saved on the **EPROM** that is placed in the LOGO! unit

Damages caused by false changes to the LOGO! program are not covered by guarantee!

Goudsmit always delivers an EPROM with the program in the LOGO!.

Sometimes a new program is needed; then we sent a new EPROM:

Loading the new EPROM program is done this way:

- Cease power of LOGO!.
- Remove old EPROM.
- Place new EPROM.
- Reset power on LOGO!, which makes that the new EPROM program is automatically loaded into the LOGO!.

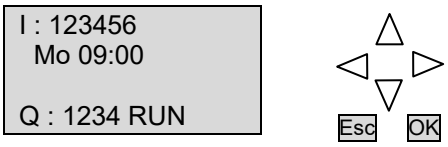
It is possible to adjust the parameters of the logic program in LOGO!, like the interval time between the Fe disposal movements of the magnet bars (moving left / right).

Changing the Fe disposal interval times of the LOGO!

To change these values one can adjust the time parameters in the LOGO! Program.

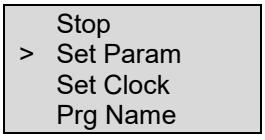
* P*arameters can be changed without having to stop the program!*

Changing the parameters should occur in the mode **"Parameters"**. To reach the mode the following procedure has to be followed from the start screen:



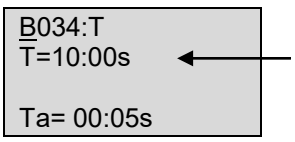
1. Push the button Esc and OK simultaneously

   LOGO! Will go to mode Parameters and you will see:



Push ▼ button and go to "**Set Param**". Push on OK to confirm this.

On the screen you will see 3 lines:



Standard set to 10 seconds

1. Block number with parameter (T).
2. Set value of this parameter (T) with his dimension (minutes: seconds).
3. The actual value of the parameter in the running program (Ta).

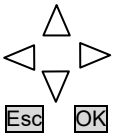
The cursor will light up in the B of block B034

3. Push OK to change the parameter.
4. Next you can move the cursor with button ◄ and ► to the position that has to be adjusted
   ➔ **T=10:00s**
5. With button ▲ and ▼ the value can be changed up or low.
6. Push the OK button to confirm the set value.
7. Push button ▼ to go to the next block (B035) when desired.
8. With Esc you will return to the main menu. Push Esc twice to return to start position.

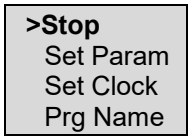
You are back in the start menu and the Fe disposal cycle is changed in the LOGO! program.

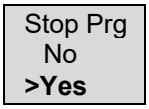
Saving the new interval times from the LOGO! to the eprom

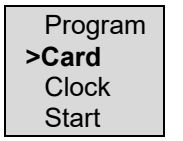
The new interval times can only be changed in the program inside the LOGO! unit. To save the adapted program to the eprom as well, act as follows:

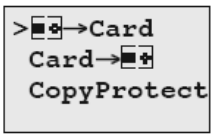


1. Push the button Esc .
2. walk to “**Stop**” with the arrows and push OK:
3. walk to “**Yes**” with the arrows and push OK:
4. walk to “**Card**” with the arrows and push OK:
5. walk to “ ■✥**Card**” with the arrows and push OK:









■✥ = LOGO!

To get a full description of the possibilities of the Siemens LOGO! you can download the user manual via web page : http://www.ad.siemens.de/logo/html_00/manuals.htm

Start-up

Before start-up, make sure that:

- The device or the installation has no damages or malfunctions.
- All connections (electrical, mechanical, pneumatic) have been made properly.
- The device or the installation is placed and situated correctly.
- All protective covers (if applicable) have been fitted correctly.
- That all objects larger than 10mm are blocked from entering the product channel.
- The device is thoroughly cleaned, internally and externally.
- The product does not fall into the magnet device, from a greater height than 10 meters.
- There are no other sources of danger present.

During start-up, make sure that:

- The device or the installation has no damages or malfunctions.
- All other parts of the device or installation function as described.

Maintenance

Magnetic systems attract Ferromagnetic particles. Regular cleaning is essential.
A clean magnet functions considerably better

All parts are best cleaned with pressurized air and/or a soft cloth. It's also possible to deep clean with special cleaning fluids that do not harm the material. Ensure that these fluids do not contaminate the product

Regularly check that all warning pictograms and the identification plate are present at the correct locations on the device. If warning pictograms or the identification plate should get lost or damaged, immediately apply new ones to the original locations.

Always inform operating personnel regarding planned inspections, maintenance, repairs or if attending to breakdowns.

Only do maintenance works to the magnet when the material stream is halted.

Attention: the magnetic field is **permanent**, so also active during maintenance and/or cleaning of the magnet!

Maintenance activities are indicated in the icons below:

Inspection

- Inspect regularly on faults and wear.
- Inspect regularly whether the magnet is saturated with Fe particles.
- Inspect regularly whether warning pictograms and identification plate are still present and readable.
- Inspect regularly whether the cleaning cycle is running properly (AUTO cleaning type external poles).

Cleaning

- Magnetic systems attract dust and ferromagnetic material, so regularly cleaning is necessary.
- A clean magnet functions much better then a saturated one, so regularly clean the saturated magnet ➔ see chapter *Working principle / Cleaning cycle / Fe disposal*.

Wear security gloves, glasses, and other necessary safety clothing while cleaning the magnet!!! (not applicable for auto cleaning types

To ease the cleaning process, the magnet plate can be turned away from the housing (fast cleaning type) ➔ see chapter *Device description* for detailed description.

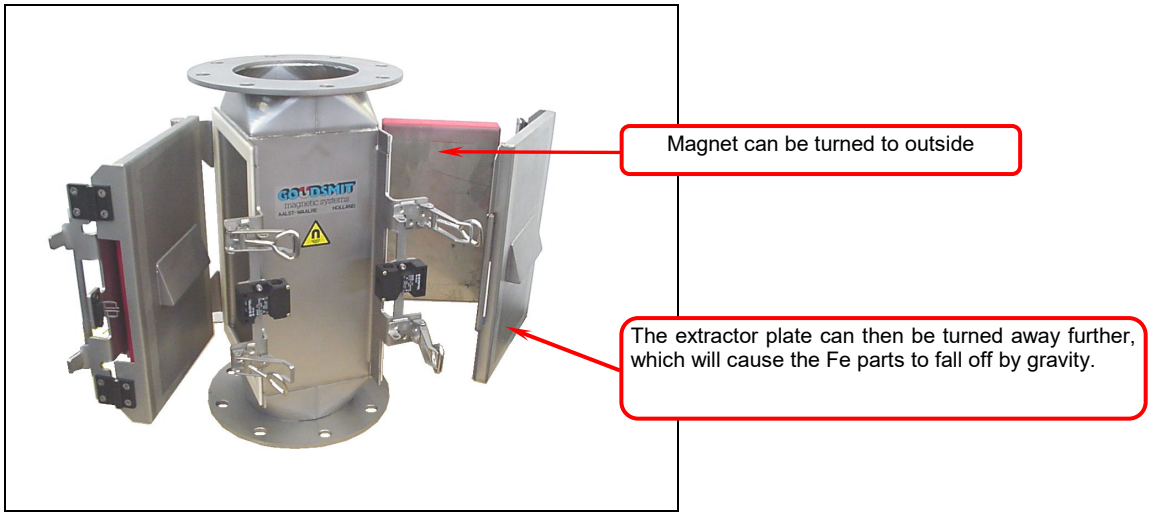


Photo: fast-cleaning external pole magnet with opened 'magnet units'

Lubrication

- Lubricate the hinges occasionally to avoid unnecessary wear.
- For food products: lubricate the bearings with special food approved grease.

Replace / Revise

- Replace (wear) parts immediately if broken, or periodically according to its replacement schedule
- Also replace any warning pictograms immediately if they are damaged or lost.

Always inform operating personnel well in advance regarding planned inspections, maintenance, repairs and when attending to malfunctions, faults or breakdowns. Make someone responsible who exercises supervision.

Magnet system

Dependant on the abrasiveness of the material stream and or the Fe contamination within, the magnet or extractor plates can wear out after time.

Wear caused by abrasive material streams can be minimized by coating the extractor plates with a protective coating, like for instance tungsten carbide.
For more information, contact ***GOUDSMIT magnetic systems***

When the magnetic surface of the plate magnet is bumped, then probably the magnets inside are damaged to.

Bumped magnets should be revised or replaced, to prevent for further damage inside the magnet system and for the magnetic force lowering as a consequence.

Cleaning & ATEX

To prevent explosion risk, avoid dust clouds and the build-up of dust layers.
If dust particles or layers heat up they may ignite and burn. This in turn can ignite airborne dust clouds and cause an explosion.

Malfunctions/Service

CAUTION!

Improper handling of the magnet device may lead to damages.
Potential damage to body and or property!

- Any repair to GOUDSMIT magnet devices may be performed by qualified personnel only.
- Be aware that permanent magnets attract ferromagnetic material with great force when it gets in reach of the magnetic field ➔ danger of getting jammed**!**
- Consult GOUDSMIT MAGNETIC SYSTEMS service

Malfunctions

In case of malfunctions, consult the following table in order to determine the cause of the malfunction and its possible remedy. In case a specific malfunction can't be found in the table, consult the GOUDSMIT Magnetic Systems service.

Malfunction	Possible cause	Possible Remedy
Magnet does not separate ferromagnetic (Fe) particles out of the product stream, or separates them badly	Magnet unit is full of dirt and or saturated with Fe particles	Clean magnet unit Actuate Fe disposal cycle more often when necessary
	Not separated particles are not (enough) ferromagnetic.	Check if particles to be separated are ferromagnetic, using a small permanent magnet
	Fe parts within the range of the magnets reduce the Fe separation capacity.	1. Check the range of the magnets using a small piece of iron. 2. Clean the magnet surface.
	Overflow of material stream capacity	Do not exceed the flow rate capacity stated in the specification.
AUTO cleaning type external poles		
Flap, top beam and or magnets do not move or move slow	Air pressure is low or off	1. Increase air pressure 2. Reactivate / reconnect air pressure
	Some object obstructs movement	Remove object
Cleaning / Fe disposal cycle does not start or does not complete itself	One or more sensors are not reacting or not reacting properly	1. Reactivate / reconnect power supply or loose cable to sensor(s) 2. Adjust sensor positions until they react properly again 3. Replace sensor(s) when broken
	Power to control unit is off	Reactivate / reconnect power supply
	One or more cylinder(s) are stuck	Relubricate and or revise or replace cylinder(s)

Customer service

Please have the following information available if you require customer service assistance:

- Identification plate (complete)
- Type and extent of the problem
- Time the problem occurred and any accompanying circumstances
- Assumed cause

Spare parts

As a result of the robustness and quality of **GOUDSMIT magnetic systems** products the device possesses high operational reliability.

When however a specific component requires replacement, the correct component can be ordered by quoting the type number stated on the *identification plate* or on one of the drawing(s) added to this user manual in the added data sheet.

The spare parts are mostly wear parts, such as:
Fast cleaning types: rubbers / packings of the magnet units, extractor plates, bearings.

Auto cleaning types: pneumatic cylinders, solenoids, bearings, proximity switches, LOGO! control unit.

Following mutual consultation Goudsmit magnetic systems will arrange rapid and correct delivery.

Storage and Dismantling

Storage

If the device will not be used for a long period of time, we advise to store the device in a dry, safe place and to conserve fragile and/or sensitive parts.

Dismantling / scrapping

On scrapping and/or disposal of the device's parts separately, take into account the different nature and dangers of the components (magnets, iron, aluminium, electrical parts, insulating materials, etc.) and ensure safe disposal. Preferably entrust the task to a specialised company, and always observe the local regulations in regard to disposal of industrial waste.