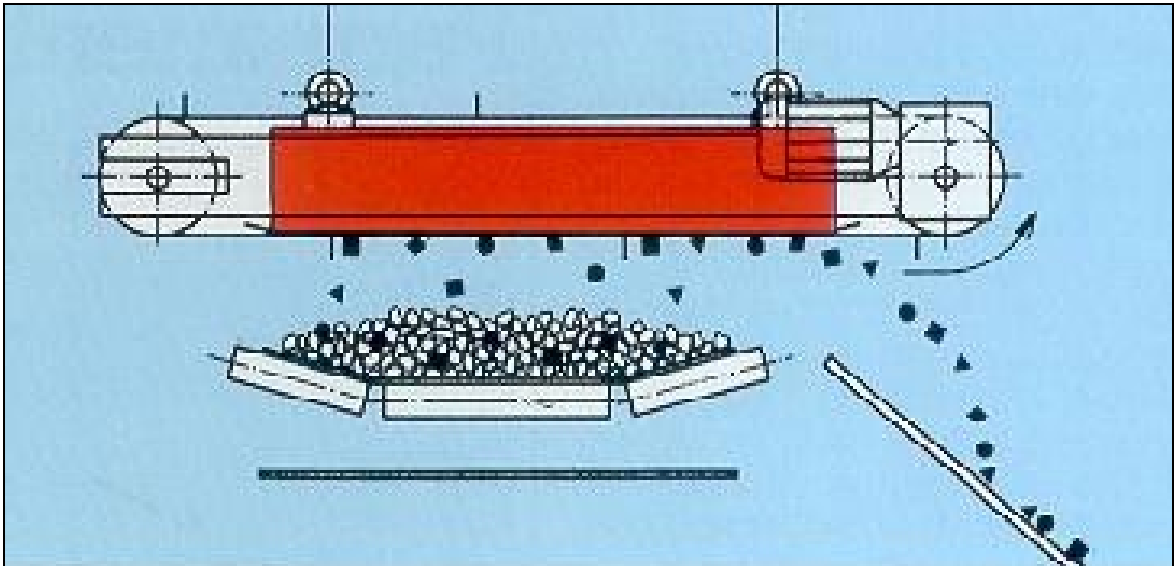


User Manual

Permanent overbelt magnet, series SxPB, ROPx, ROFx...

*Suited for Fe separation out of large masses, but well spread-out laying moving bulk goods,
even under rough circumstances*



*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.*

GOUDSMIT Magnetic Systems B.V.

P.O. Box 18
Petunialaan 19
The Netherlands
Tel.
Internet
E-mail

5580 AA Waalre
5582 HA Waalre

(+31) (0)40 221.32.83
www.goudsmitmagnets.com
info@goudsmitmagnets.com



Versions overview of standard manual

Version	Date	Description
1.0	05-2000	First version of the English version of the user manual.
1.1	01-2004	Complete renewed version of the manual.
1.2	10-2006	<ul style="list-style-type: none">• Revisions page added.• Remarks regarding ATEX versions added to pages 7, 8, 9, 20 and 26.
1.3	08-2008	Chapters Maintenance/Motor-reductor and Maintenance/Bearing systems changed
2.0	09-2009	Specification sheet and declaration by the manufacturer separated from 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.**

All technical information contained in this manual, together with any relevant drawings and technical descriptions we supply, remain our property. It may not be duplicated or disclosed without our prior written permission.

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

Versions overview of standard manual	2
Introduction	3
List of contents	4
General	5
Ferromagnetism	5
Conditions of supply and guarantee.....	6
Delivery	7
<i>General</i>	7
<i>Identification plate</i>	7
<i>Description ATEX certification</i>	8
<i>ATEX explosive zone measures</i>	8
Safety	9
General	9
Danger of dust explosion	9
Danger of magnetic field.....	10
Danger of being clamped.....	11
Danger of falling loads and moving parts sticking out	11
Danger of high voltage.....	12
Device description	13
Intended use / user indications	13
Working of the device	14
Construction	15
Installation	16
Set-up possibilities	16
Placing, transporting or moving the device	18
Conveyor belt	19
Safeguarding	19
Electrical connections general	19
<i>Electrical connections & EX</i>	19
<i>Electrical motor installation (only if applicable)</i>	20
Gasket material / grounding.....	20
Start-up	21
Checks before and during start-up.....	21
Maintenance	22
Motor reductor	23
Bearing systems with open, greased bearings.....	24
<i>Greasing (relubrication)</i>	24
Conveyor belt	25
<i>Belt alignment</i>	25
<i>Belt tension</i>	26
<i>Exchange of conveyor belt</i>	27
Cleaning & ATEX.....	27
Malfunctions/Service	28
Spare parts	29
Storage and Dismantling	30

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

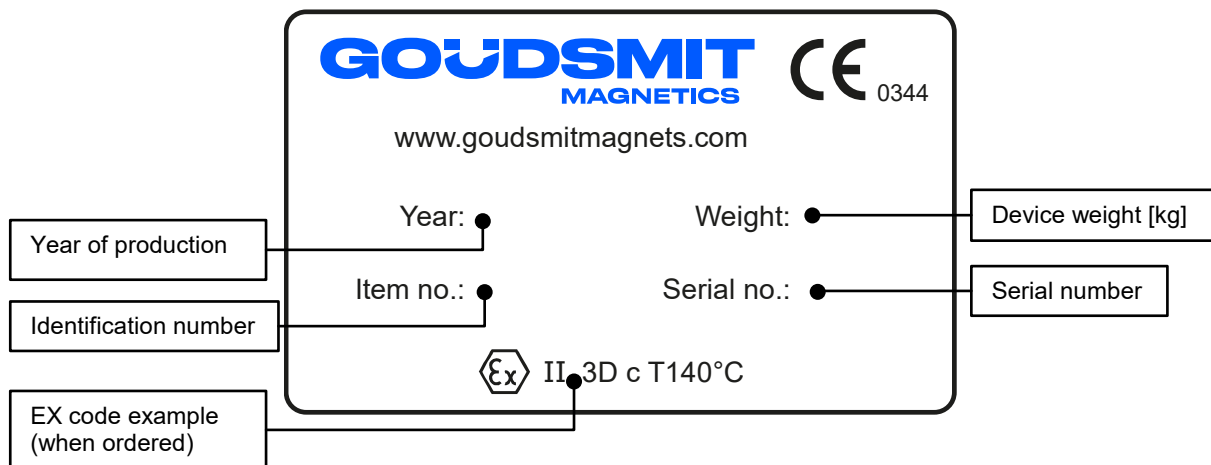
Check the shipment immediately on delivery for:

- 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  marking is added to the identification data which describes the category to which the device complies:

- Code example:  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 than 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).

- ! Always be aware that Ferromagnetic parts will be attracted - even personal items - if you are closer than 0.3 meter to a magnet.



Danger - strong magnetic field!

- ! People fitted with pacemakers should on no account enter the magnetic field (within a radius of at least 1 meters).



Prohibited for people with pacemakers!

- ! Credit cards, chip cards, computer disks/tapes, computer screens, watches, etc. may be damaged or destroyed if they enter the magnetic field (within a radius of at least 0.5 meter).



Danger for magnetic cards!

Danger of being clamped

Certain parts of the overbelt cannot be safeguarded because of their function. The conveyor belt, for instance, which runs over several rollers. Although we placed safety guards (yellow coloured), we are unable to make this device 100% safe!.



Under no circumstances should you stick your hands between the yellow safety guards and the rollers for transporting the conveyor belt.

**Danger - being clamped by moving parts****Danger of falling loads and moving parts sticking out**

The overbelt magnet is an open moving system. This can cause long ferri-ferrous parts being caught by the magnet - or parts clamped between these ferri-ferrous parts and the overbelt - to stick out of the overbelt.

Danger - moving parts sticking out

The overbelt magnet will often hang on great height, which will then mean that there is danger for falling loads.

Danger - falling loads

Both dangers can cause danger for passing persons. That is why we advise you to take extra precautions, preferably by placing a fence around or under the overbelt magnet. Ensure that comprehensive directions are given, possibly supplemented by work instructions, part of which could be formed by this user manual.

For above mentioned dangers no pictograms are placed on the magnet device. This, because they should better be placed on your fence to be effective (the accident otherwise already has happened before a person was close enough to read the warning pictograms)

Danger of high voltage

When installing and electrically connecting the device, make sure the activities are performed by qualified personnel.



Switch off the electrical power supply before performing activities to the device!



Danger – Risk of an electric shock!

Always use the main power switch (on the control box) to switch off the installation in the event of a dangerous situation.

Do not restore power until the dangerous situation has been resolved!

Device description**Intended use / user indications****Products**

Suited for Fe separation out of large masses, but well spread-out laying moving bulge goods, even under rough circumstances

Overbelt magnets are used, amongst other things, for the separation of Fe out of: building and demolition waste, paper recycling, electrical cables, car tyres, glass, wood, plastic, processing paint tins and for cleaning slag from incineration ovens.

Fe parts

The magnet can separate various shapes and forms of Fe parts - of 1 mm and up - out of moving bulge goods, when these parts are brought close enough under the magnet and are not held down too much by product that lays upon it.

Heavy Fe parts that have a compact shape, like cube-shaped or ball-shaped parts are often more difficult to be separated than light weight parts or heavy parts with long or flat shape.

Temperatures

Suited for outside temperatures of -20 °C to +40 °C.

Suited for product temperatures up to +60 °C (Neoflux® magnets) or +100 °C (Ferrite 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

Free space

The free space around the device has to be about 3 meters for maintenance and exchanging of the transport belt.

Noise level

The noise level of the device is less than 70 dB at delivery. Should it become higher, then the device has to be checked on breakdowns/failures immediately.

Vibrations

The vibrations caused by the device are to be damped out by the supporting frame or the chains in which it is hung.

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.

Cleaning

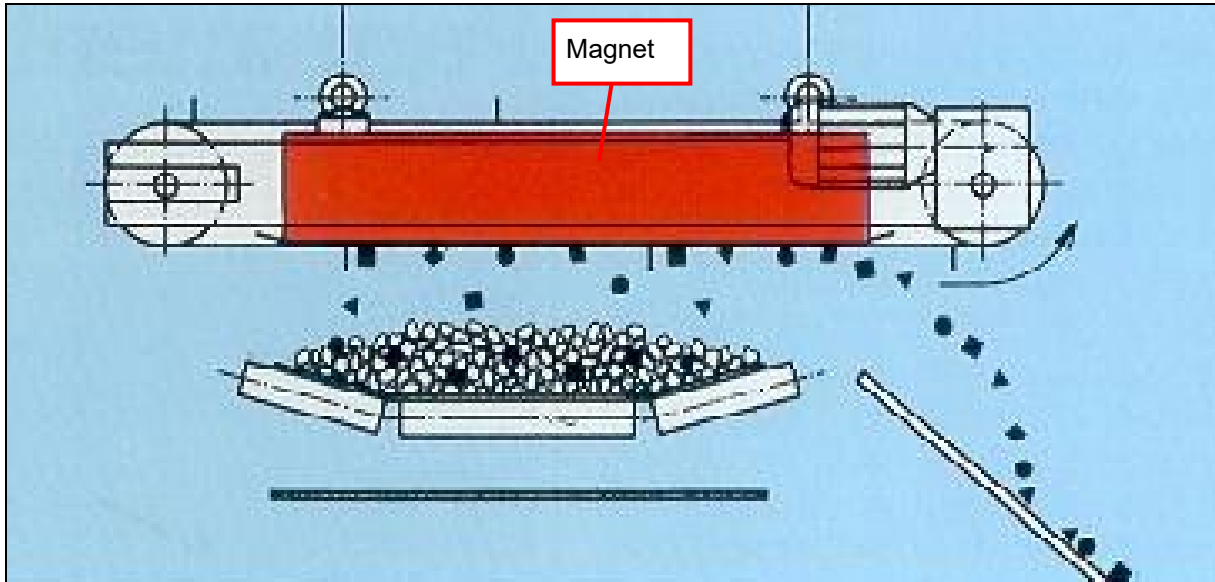
Regular cleaning is advised to prevent dust and Fe accumulation on device and the problems that can be caused by that. Clean at least once a day, or more often when necessary.

See also chapter [Maintenance](#)

Working of the device

This **permanent overbelt magnet** has been constructed following current technological standards and in accordance with generally applicable safety regulations.

It is designed for déferrisation of large masses moving bulge goods, even in very poor surrounding conditions. Given its magnet construction the magnet is very well applicable for cross mounting it over a transport belt.

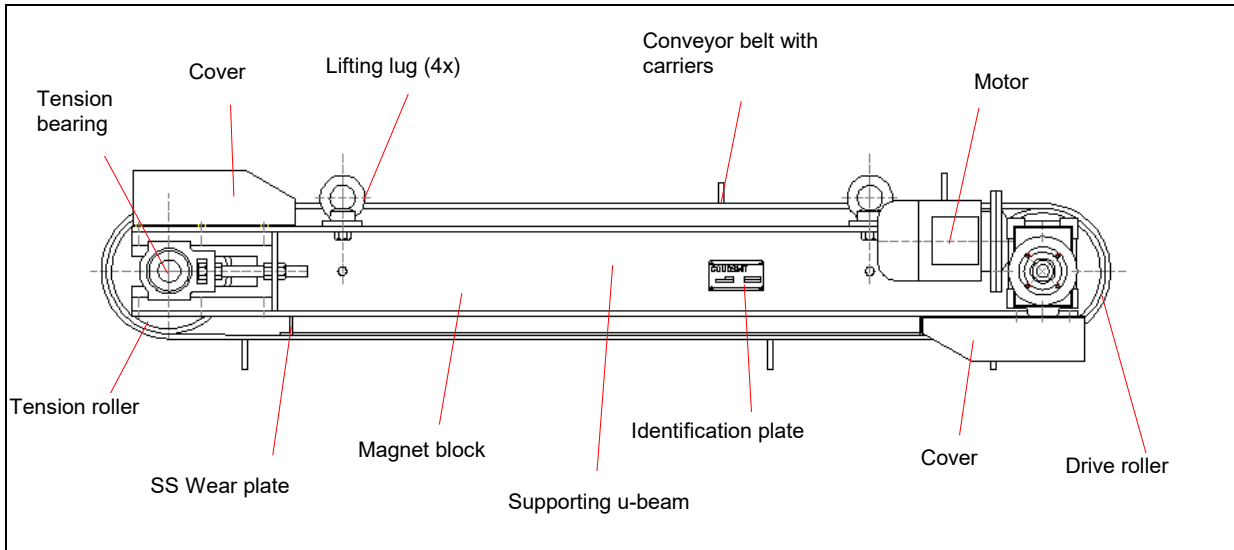


Drawing: working principle of the permanent overbelt magnet

- The product (with Fe* parts) on the transport belt passes the **magnet block** that hangs above it. The Fe material will be sucked towards the magnet.
- The Fe parts will cling under the **abrasion-resistant rubber transport belt** and subsequently be moved out of the magnetic field by the belt and its **carriers**.
- For easier movement of Fe parts out of the magnetic field, some magnets have been constructed in such a way that the magnetic field slowly decreases in moving direction of the belt.
- Finally the separated Fe parts will fall off by their own weight and can then be caught and collected or transported away.

*Fe = ferromagnetic, see chapter **General**

Construction



Drawing: Construction of permanent magnetic overbelt

- A changeable stainless steel wear plate is mounted to protect the magnet against the separated parts that hit the belt with force;
- The overbelt magnet has a 2-roller construction, around which a conveyor belt is running. The drive roller and the tension roller are curved to have a steering effect on the conveyor belt. The belt can be tensioned by adjusting the 2 tensioning bearings in which the tensioning roller is hung.
- Around the rollers a strong and extra thick rubber conveyor belt is mounted. On this belt we placed several carriers, which have the function of taking the separated ferri-ferrous parts outside the magnet field, so they can be thrown off easier.
- The 2 head rollers hang in 2 supporting beams of u-profile.
- On the frame beams minimum 4 lifting lugs are mounted, onto which the permanent overbelt magnet can be hung/mounted.
 - Preferably hang device in chains, steel cables or stable frame.

Installation

Set-up possibilities

General remarks

1

Do not use ferromagnetic materials for rollers and/or construction parts of your transport system within the magnet field of the overbelt magnet. These parts will be magnetised and thereby influence the Fe separation negatively. This is also true for constructions, made for the discharge of separated parts.
Use for instance stainless steel!

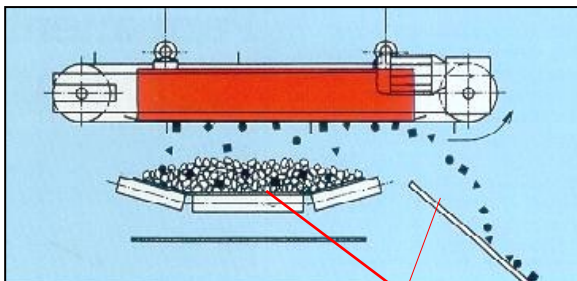
2

To facilitate the evacuation of the extracted ferrous material, it is essential to create a non-magnetic slide (like SS). The slide must furthermore be safe and not approachable by persons.

3

The magnet's conveyor belt velocity must at least be equal to, but should better be a factor 1,3 higher than the velocity of your conveyor belt. This causes even longer Fe parts to be separated and discharged without difficulty. When a lower velocity is chosen, there is a risk that Fe parts will accumulate under the magnet.

1. Transversely over a conveyor belt or gutter



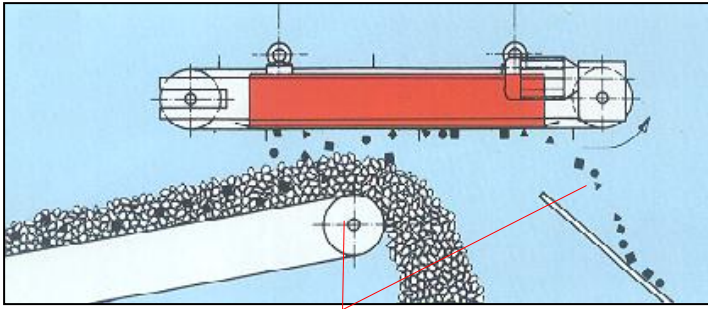
Non-magnetic materials directly under the magnet, for instance stainless steel

Preferable when the velocity of your conveyor belt is **lower than 1.5 m/s**

Advantage: The raw material passes 2 long pole fields of the magnet, which causes a superb déferrisation.

Disadvantage: This set-up causes the Fe parts to change 90° in direction when they are separated, as a result of which a stronger magnet is necessary when high velocities are requested.

2. Longitudinal over the reverse roller of your conveyor belt



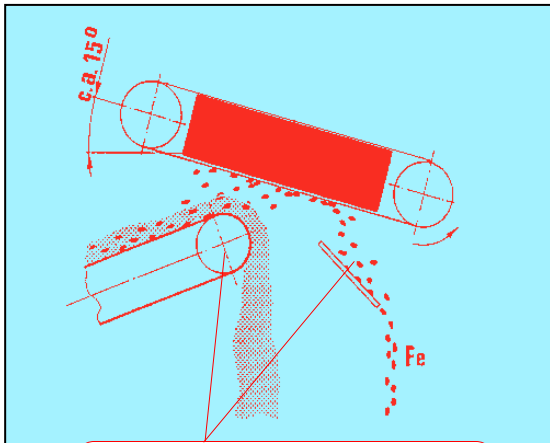
Preferable when the velocity of your conveyor belt is **higher than 1,5 m/s and lower than 2,5 m/s**

Roller and support of non-magnetic material, for instance stainless steel

Advantage: The raw material spreads out under the magnet and Fe parts will be easier 'caught', while they fall down.

Disadvantage: More difficulties to catch all Fe parts, while the sides of the magnet are less strong magnetic than the middle.

3. Longitudinal 15° rotated over the reverse roller of your conveyor belt



Preferable when the velocity of your conveyor belt is **higher than 2.5 m/s**

Rollers and supports of non-magnetic material, for instance stainless steel or aluminium

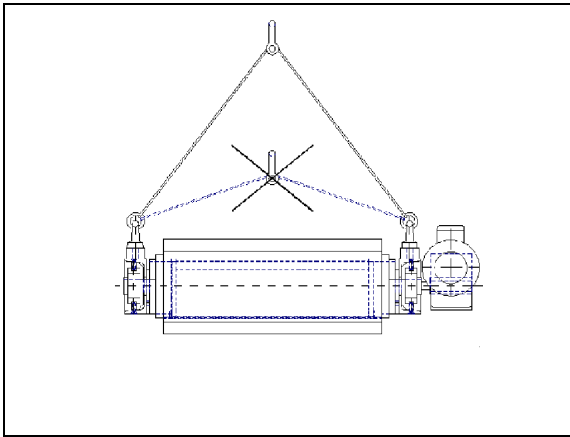
Advantage: With this set-up the magnet hangs a bit more in the falling direction of the raw material, which causes a better separation than with set-up 2 if the velocity of your conveyor belt is very high..

Disadvantage: Separated Fe parts can 'shoot' back to the magnet when the magnet is rotated too much.

Placing, transporting or moving the device
The overbelt magnet must always be lifted on all 4 lifting lugs!

Take the position of the centre of gravity into account. This is *not* in the middle/centre of the device, but closer to the centre of the magnet.

- Use only lifting/hoisting and transport equipment that is in good condition and never exceed the safe working load of the equipment being used.
On the heavier **Goudsmit magnetic systems** devices the weight is stated on the *identification plate*.



Drawing: correct lifting

- Work safely, ensure sufficient working space and use stable and reliable scaffolding, ladders and other auxiliary equipment to ensure that the device can be installed without risk.
- All auxiliary equipment used for transport purposes, such as support legs, must be dismantled and removed before putting the device into operation.



Support legs for transport

- The device is preferably hung in chains, because chains damp out vibrations better than a stiff mounting construction.
- Use only metal shackles for lifting or placing of the overbelt magnet. Do not use hoisting straps in the hoisting eyes; these are too vulnerable/ sensitive to wear.

Conveyor belt

The devices/installations from Goudsmit Magnetic Systems BV are delivered with the conveyor belt aligned and correctly adjusted belt tensions with no product on. Always check them before operating the device with the product on!

Why check belt alignment and belt tension?

- A non-aligned belt will wear more quickly or become damaged.
- If the tension of the belt is too high, extra stress is placed on the belt and magnet roller. This increases the risk of a belt break, or bearing wear.

In the chapter **MAINTENANCE** we describe how the belt alignment and the belt tension must be, and how to change them if necessary!

Safeguarding

Fe particles leaving the running overbelt must be collected or disposed of safely. Provide a good safeguarding to protect people in the vicinity of the device from getting hurt by these falling and disposed Fe particles.

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.

Electrical motor installation (only if applicable)

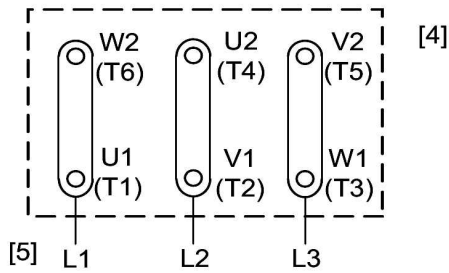
Check that the rotation direction of the driving motor is correct:

This can be checked by briefly switching the motor ON.

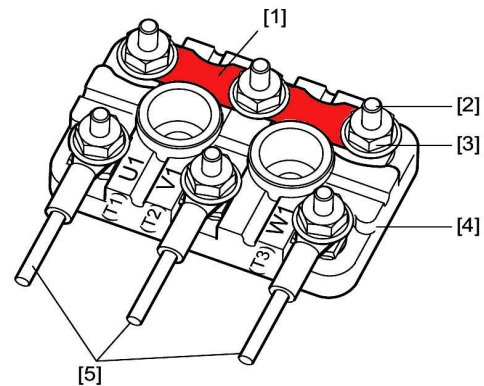
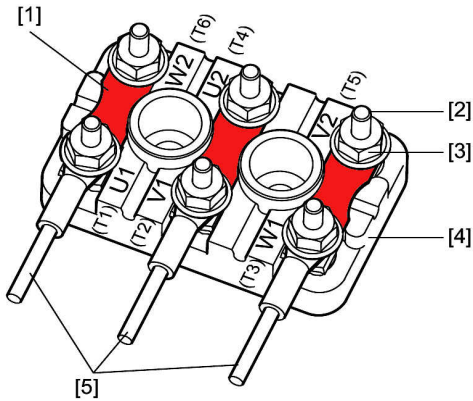
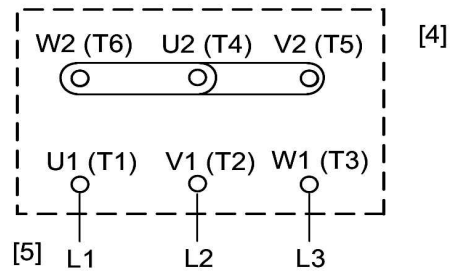
If the direction of rotation is incorrect, reverse 2 of 3 phases (U - V):

(It makes no difference whether you have a **Y** or a **Δ** circuit!)

**Low voltage
230 volt**



**High voltage
400 volt**



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.

Start-up**Checks before and during start-up**

**During start-up, it is essential to follow the safety notes in this user manual!
Before start-up, make sure that:**

The device or the installation has no damages or malfunctions.

- All connections (electrical, mechanical, pneumatically) have been made properly.
- The device or the installation is placed and located correctly.
- All protective covers (if applied) have been fitted correctly.
- All foreign (iron) objects larger than 10mm are blocked from entering the production 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.
- That the entire installation, including the magnet tubes, is grounded.
- There are no other sources of danger.
- During operation, make sure that:
- The device or the installation has no damages or malfunctions.
- The motor is running correctly (no overload, no speed fluctuation, no loud noises, etc.).
- The motor rotates in the correct/wanted direction.

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.

Motor reductor

De-energise the motor and make sure it cannot be switched back on without your knowledge.
Wait until it has cooled down – **DANGER FOR BURNING!**

Regularly check if the motor produces more noise than normal, or if it generates more heat than normal. If that is the case, find out what the cause is and solve the problem(s) as soon as possible to prevent (further) damage.

In the table below, general inspection and maintenance intervals are shown as an indication of the inspection and maintenance that is needed.

REDUCTOR	
Frequency	What to do?
<ul style="list-style-type: none"> Every 3000 machine hours, at least every 6 months. 	<ul style="list-style-type: none"> Check oil and oil level. Check the seals visually for leakage. For gear units with a torque arm: Check the rubber buffer and change it, if necessary.
<ul style="list-style-type: none"> Depending on the operating conditions (see chart below), every 3 years at the latest. According to oil temperature. 	<ul style="list-style-type: none"> Change oil. Replace anti-friction bearing grease (recommendation). Replace oil seal (do not install it in the same track).
<ul style="list-style-type: none"> Depending on the operating conditions (see chart below), every 5 years at the latest. According to oil temperature. 	<ul style="list-style-type: none"> Change synthetic oil. Replace anti-friction bearing grease (recommendation). Replace oil seal (do not install it in the same track).
<ul style="list-style-type: none"> Some gear units (like SEW R07, R17, R27, F27 and Spiroplan®) have lubrication for life and are therefore maintenance-free. 	
<ul style="list-style-type: none"> Varying (depending on external factors). 	<ul style="list-style-type: none"> Touch up or renew the surface/anticorrosion coating.
MOTOR	
Frequency	What to do?
<ul style="list-style-type: none"> Every 10.000 hours of operation. 	Inspect the motor: <ul style="list-style-type: none"> Check ball bearings and change if necessary. Change the oil seal. Clean the cooling air passages.
	[1] Operating hours. [2] Sustained oil bath temperature. Average value per oil type at 70°C [3] Most of our gearboxes use 0.4 liter CLP PG NSF H1 Klubersynth UH1 6-460 oil [4] Replacement interval is dependent on temperature

Table: general motor gear inspection and maintenance intervals

When replacing oil, use CLP PG NSF H1 **KLUBERSYNTH UH1 6-460** which is approved for incidental contact in the Food and Pharmaceutical industry.

Bearing systems with open, greased bearings



Regularly check whether the bearings make more noise than usual or whether they are warmer than normal. If this is the case, find out what the cause is and solve the problem(s). After that, it might be necessary to replace the grease and/or to replace the bearing(s).



For bearing **replacement intervals**, combine own experience data of bearings in similar applications with the recommended and/or estimated interval periods, as indicated in the maintenance tables and/or formulas of the bearing manufacturer.

Greasing (relubrication)



The bearing systems applied by **GOUDSMIT magnetic systems** all contain **grease-lubricated bearings**, which are properly sealed against dirt and humidity. They, however, basically still need maintenance, for example when the bearings are used in dirty and/or humid environments and/or at high temperatures and/or when they have a longer operating life than the operating life of the grease. The way and frequency of replacing bearing grease (relubrication) depends on the application and the employed grease (higher-quality grease requires less frequent maintenance). It is desirable to use grease that is equal to the originally filled. Different greases should not be mixed because it can cause a poor lubrication performance

When **relubricating**, completely replace the old grease by fresh grease at a moment that the state of the grease still is sufficient. Preferably supply the grease during operation, in order to avoid excessive greasing level. Inject the fresh grease from the grease supply fitting.

Continuous lubrication is only recommended at low revolutions and/or when the calculated greasing interval is very short and/or other greasing methods do not comply and/or access to the bearing is very difficult.

Table below provides a **general indication for greasing (relubrication) intervals**. For more precise greasing intervals, combine experience data of bearings in similar applications with the recommended and/or estimated interval periods, as indicated in the maintenance tables and/or formulas of the bearing manufacturer.

Table: General indication of greasing intervals

Operating temperature of bearing		General indication of greasing interval		
°C	°F	Environmental condition		
		Clean	Dirty	Very dirty / Heavily humid
50	122	3 years	6 months	3 months
70	158	1 year	2 months	1 month
100	212	3 months	2 weeks	1 week
120	248	6 weeks	1 week	3 days
150	302	2 weeks	3 days	Daily



Consult the (maintenance) manual from the bearing manufacturer for more specific maintenance instructions, like greases to be used and grease replacement intervals.

Conveyor belt



Ensure that the conveyor belt and rollers are cleaned regularly.

Contamination can cause extra wear to the belt and/or misalignment of the belt.

Belt alignment

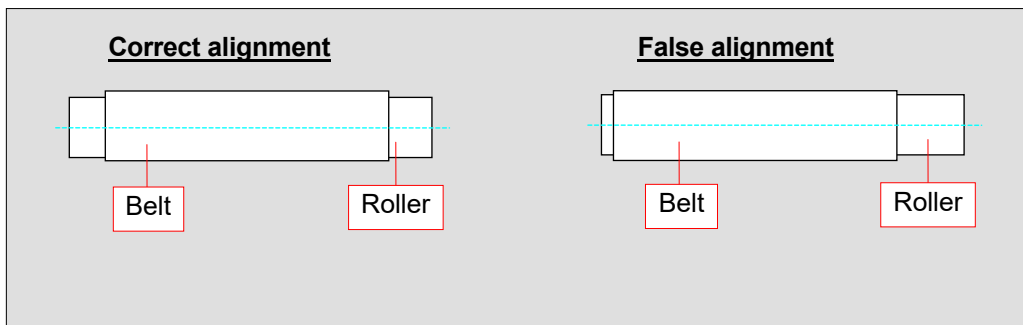


Check belt alignment regularly (minimum daily) whilst device is operative.

If the belt alignment is not correct this may cause excessive wear to the belt as well as to the magnet and/or rollers.



When the conveyor belt gets misaligned, it has to be adjusted using the driving roller and/or reversing roller.



For direct control, belt-misalignment switches can be mounted (option),

Belt tension

Check the belt tension to be correct.

If the belt tension is too high extra stress is placed on the axle journals and bearings in the driving and end roller, increasing the risk of an axle break or bearing wear.

The recommended belt tension depends on operational circumstances. On lightly loaded installations the belt is usually tensioned to a stretch factor of 0.5 to 1.0%.

Belts are only ever tensioned to maximum, if necessary, on fully loaded installations.



If the belt tension is too high it has to be adjusted :

Belt tension adjustment :

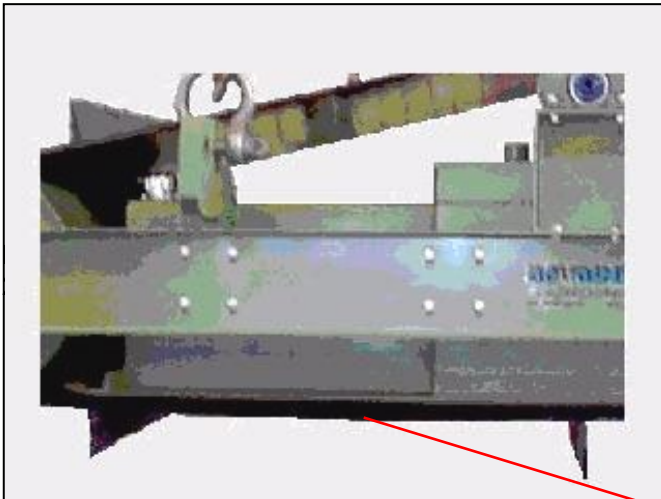
1. Release belt tension so that the belt lies loosely on the rollers.
2. Tension the belt using the tensioner until it is no longer loose.
3. Mark two stripes on the belt exactly 1000 mm apart.
4. If for example you wish to tension the belt to a stretch factor of 0.8%, adjust the belt tensioner until the distance between the two stripes is exactly 1008 mm.

Rubber conveyor belt:

Your rubber belt, type xxx/3 or xxx/2, has a maximum permitted belt tension of xxx/10 [N/mm belt width], which corresponds to approx. 1.5% stretch.

Example:

type 315/2; max. permitted belt tension approx. 30 [N/mm belt width]



Attention: the belt must still sag after tensioning!

To check: take 2% of the distance between the main rollers in mm as minimum sag.

Belt sag

Exchange of conveyor belt



Check your conveyor belt regularly on excessive wear.



Mount a new belt when excessive wear appears, so your device will be prevented from further damage.

Exchange of conveyor belt

1. Cut the old conveyor belt and remove it.
2. Inspect and clean the wearing plate and any possible device parts now accessible.
3. Release the tensioner bearings to their maximum position.

After having executed above mentioned 3 points, following working methods are recommendable:


Method A <i>(fork-lift truck)</i>	Method B <i>(vulcanise)</i>
<i>Recommendable when the device is well accessible. Make sure that fork-lift truck has enough work space</i>	<i>Recommendable when the device is badly accessible.</i>
<ol style="list-style-type: none"> 1. Place the new belt around the forks of the fork-lift truck. (Pay attention to the preference direction of the belt). 2. Ensure that the overbelt magnet hangs horizontal. 3. Lift the device on one side just high enough so that the chains/cables hang loose at that side. 4. Remove the loose hanging chains. 5. Shove the new belt over the roller. 6. Attach the chains/cables back. 7. Remove the fork-lift truck out of the working area. 8. Tension and align the belt with the tensioner roller. 	<ol style="list-style-type: none"> 1. Place the new belt. (Pay attention to the preference direction of the belt). 2. Vulcanise the loose ends of the conveyor belt.

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!
	<p>Improper handling of the magnet device may lead to damages. Potential damage to body and property!</p> <ul style="list-style-type: none"> Any repair to GOUDSMIT magnet devices may be performed by qualified personnel only. Be aware that permanent magnetic material attracts ferromagnetic material with great force when it gets in reach of the magnetic field Consult GOUDSMIT MAGNETIC SYSTEMS customer 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 customer service.

Malfunction	Possible cause	Possible remedy
Magnet does not separate ferromagnetic (Fe) parts, or separates them badly	Magnet is placed too high over your conveying belt.	Mount the magnet at a lower level.
	Unattracted particles are not ferromagnetic	Check that the particles to be separated are ferromagnetic by using a small permanent magnet
	Fe parts of your conveying installation within the reach of the magnet reduce the separation capacity.	Check the reach of the magnet with a little ferromagnetic sample to determine whether parts of your conveying installation are attracted to the magnet. If so, then these parts have to be replaced by non-magnetic parts (for instance SS)
	Velocity of your conveyor belt is too high.	Reduce velocity of your conveyor belt.
Belt alignment is wrong	Some object(s), which is (are) stuck in device, cause(s) belt to 'walk away'	Remove object(s)
	Roller(s) alignment is (are) wrong	Re-align roller(s) and belt
Motor makes excessive noise / has an excessive high nominal Current [A]	Conveyor belt tension is too high	Reduce belt tension with tensioning roller
	Some object(s) got stuck between belt and roller(s)	Remove object(s)
Bearings make excessive noise	Conveyor belt tension is to high	Reduce belt tension
	Bearings have excessive wear	Replace bearings

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:
bearings, motor, conveyor belt, belt misalignment switches and or rollers, flexible coupling, proximity switch for rotational speed control → see Appendices.

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.