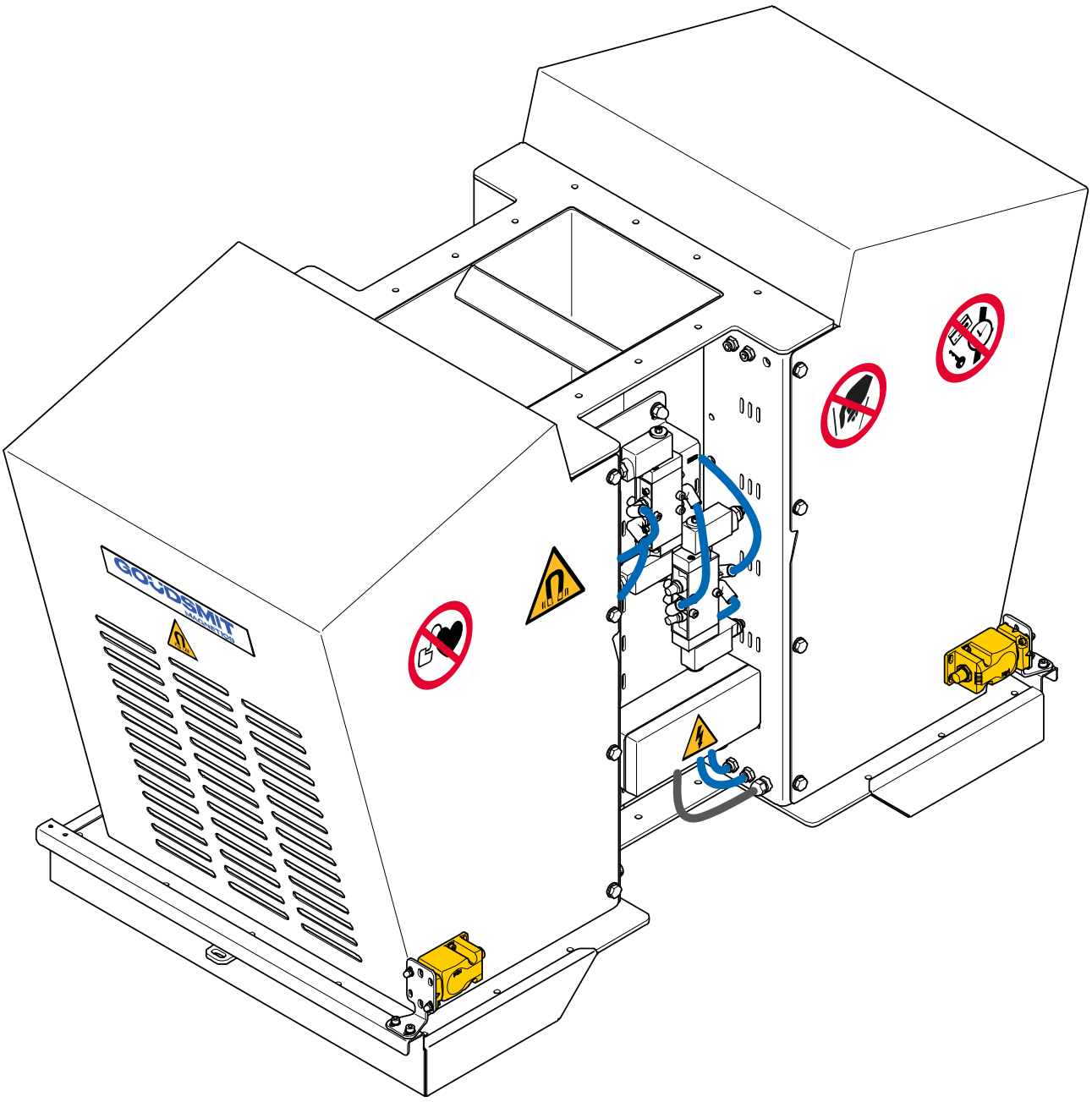
Installation and user manual

External pole magnet, type SBPA

Suitable for granulates and dry, well-flowing powders in pressureless free-fall conveying lines.



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1 Introduction

This manual contains information about correct use and maintenance of the device. The manual contains instructions that should be followed to prevent injury and serious damage and to ensure safe and problem-free operation of the device. Read this manual thoroughly and ensure that you fully understand everything before using the device.

If you need more information or still have questions, please contact Goudsmit Magnetic Systems B.V.. The contact details are provided on the title page of this manual. Additional copies of the manual can be ordered by providing the device description and/or article number as well as the order number.

In this manual, the SBPAZ automatic external pole magnet is further referred to as “device”.

NOTICE

Read this manual carefully before installation and commissioning!

The descriptions and figures in this manual, provided for explanatory purposes, may differ from the descriptions and figures of your version.

NOTICE

This manual and manufacturer’s declaration(s) are to be considered part of the device.

Both documents must remain with this device if it is sold.

The manual must be available to all operating personnel, service technicians and others who work with the device throughout the life of the device.

2 Safety

2.1 Safety risks

This chapter describes the safety risks of the device. Where necessary, warning pictograms have been affixed to the device. These pictograms are explained later in this document.

NOTICE

Observe the following measures:

- ► Read the warning pictograms on the device carefully.
- ► Check that the pictograms on the device are present and legible at regular intervals.
- ► Keep the pictograms clean.
- ► Replace pictograms that have become illegible or that have been removed with new pictograms in the same locations.

2.2 General safety instructions

- The instructions in this manual must be complied with. If they are not, there is a risk of material damage, personal injury and even a danger of death.
- The device may only be used for magnetic filtration of granulates and free-flowing powders in pressureless free-fall lines. Any other use is inconsistent with the regulations. Any resulting damage is not covered by the factory warranty.
- Ensure that people who work on the device or in its immediate vicinity wear adequate protection equipment.
- Impose additional safety measures if the device remains easily accessible to people. If this is not possible, ensure that clear instructions are provided for the entire system in which this device is integrated.
- The device may only be operated remotely when all covers are in place and moving parts are inaccessible.

WARNING

Risk of entrapment!

Do not carry out any cleaning or maintenance work inside the device while it is still in operation, even with the cover plate or inspection covers removed.

- Work on the device may only be carried out by qualified personnel. Ideally, maintenance work on the magnets should be carried out by Goudsmit Magnetic Systems B.V. personnel.
- Always take locally applicable safety and environmental regulations into account.

2.3 Damage due to magnetic field

The magnets generate a powerful magnetic field that attracts ferromagnetic particles. This also applies to ferrous materials that may be carried on the person, including keys, coins and tools. When working within the magnetic field, use non-ferromagnetic tools and workbenches with a wooden worktop and non-ferromagnetic base.

WARNING

Strong magnetic field

There is a risk of personal injury when carrying out work and measurement checks on the device. Do not place the fingers or other body parts between the magnetic components.

2.4 Emergencies

WARNING

Switching off in case of emergency

The device does NOT have a safety switch. It is very important that your installation includes a provision for shutting off the power and air supply to the device in an emergency.

2.5 Dust explosion hazard – Ex marking

If the device is manufactured for compliance with an Ex dust category (1D/2D/3D, in accordance with ATEX equipment directive 2014/34/EU) and may therefore be used in an Ex dust zone (20/21/22, in accordance with ATEX workplace directive 99/92/EC), the Ex category is shown on the identification plate.

- Check whether the device meets the correct Ex category.
- Check whether the installed parts (safety switch, proximity sensor) with their own identification plate meet the appropriate Ex category for the Ex zone in which the device will be used.

2.6 Other remarks/warnings

Rectify all faults before operating the device. If the device is used whilst exhibiting a fault, after having completed a risk assessment, warn operating and maintenance personnel of the fault and the potential risks associated with that fault.

3 Standards and regulations

3.1 CE marking

In terms of construction and operation, this device complies with European and national requirements.

The CE marking confirms the conformity of the device with all applicable EU regulations associated with the application of this marking.

3.2 Directives

The standard version of this device conforms to the requirements of the following European directives:

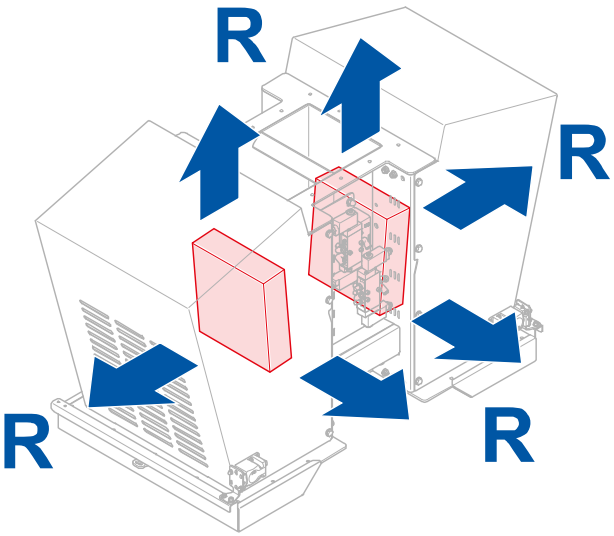
- Machinery directive 2006/42/EC
- EMC directive 2014/30/EU
- ATEX directive 2014/34/EU (if applicable)

3.3 Limit values for occupational and public exposure to permanent magnetic and electromagnetic fields

The limit values and magnetic fields are defined in accordance with the EMC Directive 2013/35/EU as follows:

Directive 2013/35/EU *of the European Parliament and of the Council of* 26 June 2013 *on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields).*

Observe the following measures in relation to exposure to magnetic fields in accordance with EN12198-1 (machine category = 0, no restrictions) of the device:



Life-threatening danger to people with implanted medical aids

People with an active implanted medical aid (e.g. pacemaker, defibrillator, insulin pump) may never be present within a radius ‘R’ of 1.5 metre(s) of the device.

Damage to products with sensitivity to magnets

Products that contain ferromagnetic parts, such as debit cards, credit or chip cards, keys and watches, may be rendered permanently damaged if they come within a radius ‘R’ of 0.35 metre(s) of the device.

Employees who are pregnant and the general public may not come within a radius ‘R’ of 0.1 metre(s) of the device.

WARNING

Projectile hazard

Ferromagnetic objects will be attracted if they come within a radius of 0.35 metre of the magnet.

4 General information

4.1 Ferromagnetism

The device's principle of operation is based on ferromagnetism. Ferromagnetism is a property possessed by certain materials, such as iron, cobalt and nickel. These materials can become magnetized when exposed to an externally applied magnetic field. Materials that remain magnetized after the external magnetic field is removed are called permanent magnets or magnetically hard.

However, most magnetic materials lose their magnetism after the external magnetic field is removed. These are soft magnetic materials. Most alloys of iron, cobalt and nickel are magnetic.

However, some stainless steel alloys, such as AISI304 or AISI316, are only slightly magnetic.

4.2 Warranty conditions

The warranty on the device is void if:

- Service and maintenance are not performed in accordance with the operating instructions or are carried out by personnel not specially trained for this purpose. Goudsmit Magnetic Systems B.V. recommends having service and maintenance carried out by service technicians from Goudsmit Magnetic Systems B.V..
- Modifications to the device are carried out without our prior written consent.
- Parts of the device are replaced with non-OEM or non-identical parts.
- Lubricants other than those prescribed for this device are used.
- Parts of the device become damaged, because the device was put into production with a malfunction and/or a persistent malfunction.
- The device is used injudiciously, incorrectly, carelessly or in a manner not in keeping with its nature and/or intended use.

NOTICE

All parts subject to wear and tear are excluded from warranty.

4.3 Other remarks/warnings

- Do not use the device if it is damaged.
- Only use the device for the application for which it was designed.
- Check that all protection covers (including all safety circuits) are correctly fitted and installed.
- Ensure that the device is maintained correctly and in accordance with the instructions in this manual.
- Rectify all faults before operating the device.

5 Specifications

5.1 Description of function

External pole magnets are integrated into vertical channels to capture unwanted ferromagnetic particles of 0.5 mm up to a maximum particle size of 50 mm from product flows. The housing can be screwed between rectangular flanges. They are often used in incoming product flows that may contain ferromagnetic metals, such as nails, small pieces of wire, etc. When capturing ferromagnetic particles, the extractor plate and magnet are positioned flush against the mounting frame. The extractor plate is in contact with the product flow. Ferromagnetic particles are magnetically attracted as they pass by and are captured by the powerful plate magnet.

To dispose of captured particles, the plate magnet can be pneumatically retracted from the extractor plate. The captured particles are then released.

NOTICE

Excessively large pieces can block the product channel or prevent the extractor from staying against the plate magnet during a cleaning cycle due to the high magnetic force. Furthermore, the captured piece of ferromagnetic metal may be too large to fit through the disposal opening.

► If necessary, place a sieve in front of the product inlet of the device in your installation.

5.2 Range of application

The device can be used for product flows with relatively high ferromagnetic contamination levels. Suitable for granulates and dry, free-flowing powders in pressureless free-fall conveying lines. Its pneumatic control and operation make this device suitable for hard-to-reach situations in combination with centralized control.

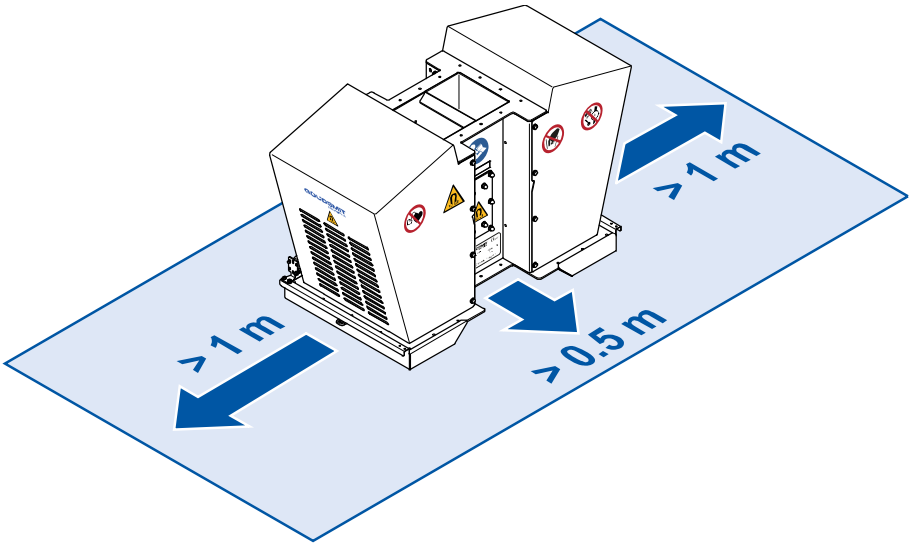
5.3 Temperatures

The device is equipped with standard neodymium (NdFeB) magnets suitable for the following ambient and product temperatures:

Magnet quality used	Ambient temp.	Max. product temp.	Max. product temp. (ATEX dust environment)
GSN-35	-5 °C to +40 °C	60 °C	40 °C
GSN-35SH	-5 °C to +40 °C	130 °C	40 °C

The magnetic material must be protected against higher temperatures than those specified on the data sheet as the magnet will permanently lose magnetic force if exposed to higher temperatures.

5.4 Free space



The minimum required free space for maintenance and inspection work is one metre for removal/fitting of the protection covers and 0.5 metre on the side with the inspection hatch and control components.

5.5 Connection voltage

- Connection voltage for solenoid valves and detection sensors is 24 VDC.

5.6 Pressure within the product channel

Mount the device in a pressure-free duct. The free fall causes the product to pass through the device, allowing the filtration to function properly.

The (relative) overpressure in the product channel must be below 0.2 bar. The (relative) negative pressure in the product channel must not exceed 0.5 bar.

5.7 Air pressure

For the pneumatic connection of the air preparation unit, use an air pressure of approximately 6-8 bar.

6 ATEX

If the device is ordered for use in an Ex zone, the device is manufactured to conform to the correct IP class and to ensure that the surface temperature does not exceed that which is permitted for ATEX.

The ATEX marking on the engraved identification plate only applies to the product produced by Goudsmit Magnetics.

Furthermore, the parts purchased for or used in connection with the ATEX magnets (or partially ATEX magnets), such as control box, connection box(es), switch(es), sensor(s) and pneumatic parts, are also ATEX versions.

NOTICE

The purchased ATEX parts have their own ATEX marking.

The overall ATEX classification of the assembled device may be lower than indicated by the ATEX marking on the Goudsmit Magnetics identification plate if the additional parts with their own ATEX marking have a lower rating.

6.1 Markings

If the equipment is suitable for use in a potentially explosive atmosphere (ATEX), the identification plate includes an Ex marking that indicates the environment for which the equipment is suitable (gas or dust), the specific equipment category and other criteria the equipment meets.

Example
Ex marking for Dust:  II 1/3D h T130°C Da/Dc Ta = -5°…+40°C

Explanation:

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

1/3 → Equipment category
(ignition protection level: 1= very high, 2= high, 3= normal)

D → type ATEX environment D(ust)

Equipment category for dust	1D	3D
Suitable for ATEX zone(s)	20 (21 & 22)	22

h → Type of Ex protection:
h = non-electrical equipment
(protection method not specified)

T130°C → Maximum surface temperature for dust atmosphere

Da/Dc → Equipment Protection Level (EPL)

EPL (for dust)	Da	Dc
Suitable for ATEX zone(s)	20 (21 & 22)	22

Ta → Ambient temperature range – shown only if the range differs from the standard temperature range for ATEX (-5 to +40 °C).

If the device is externally certified, the ATEX certificate number is included on the identification plate. Next to the CE marking is the identification number of the notified body that certified our ATEX quality assurance system.

6.2 Description of ATEX options

Product key at equipment level:

SBPA – *xxxx* – *x* – *xxx* – *x* – Z

The part of the product key shown in the red box indicates the following ATEX options:

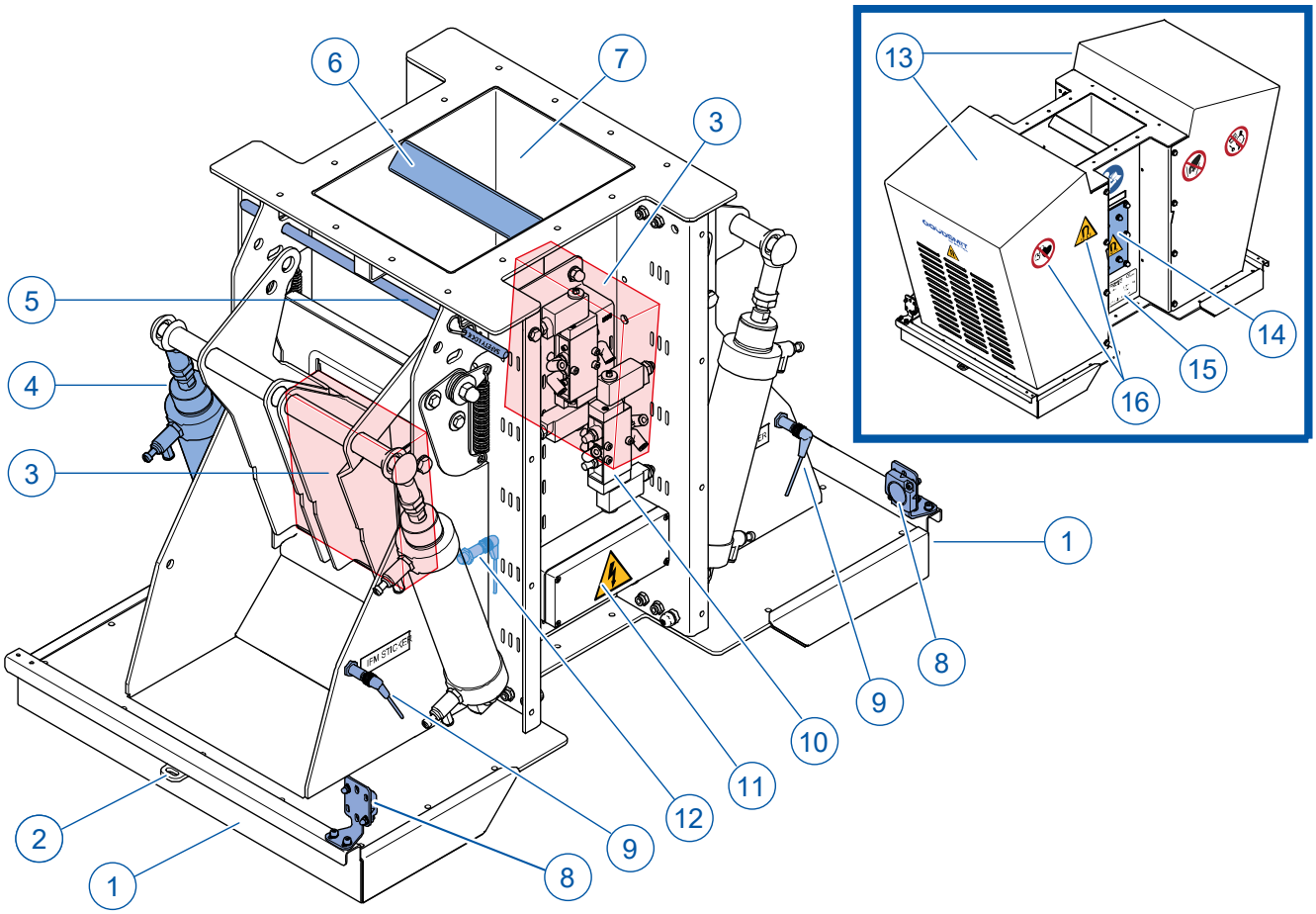
Value	Explanation of Ex marking	
B	Basic (no sensor)	
Z		Door safety switch Ex II 2D

6.3 ATEX measures

- The temperature of the product must not exceed 40 °C.
- For ATEX dust environment:
  - The ignition temperature of dust must exceed 180 °C.
  - The smouldering temperature of a dust layer must exceed 195 °C.
  - Dust layers thicker than 5 mm must not accumulate on the equipment.
- Ensure that no particles >50 mm are present in the product flow. These can damage the magnets or cause sparks.
- If necessary, fit a mechanical filter (sieve) for the separation system.
- The free fall height above the equipment must not exceed 10 metres.
- If the device is placed in storage or will not be used for longer periods, make sure it is emptied and cleaned.
- The device must be earthed. The electrical resistance to earth must be less than 1 MΩ. If a gasket is used between the device and the larger installation, provide a way to equalise potential electrostatic charges with a maximum electrical resistance for the installation of 25 Ω. This can be done by fitting a braided bonding cable or other means.
- No insulating paints or coatings with a thickness of more than 2 mm may be applied to the outside of the equipment.
- All screw connections inside the device must be secured against loosening.
- Prevent ignition sources such as glowing particles, flames or hot gases from entering the device. Substances that are susceptible to accumulating an electric charge can be an ignition source for gases, mists, and vapours (e.g., static-chargeable plastic granulates with solvent vapours).

7 Product information

7.1 Construction



[1] Collection bin
[2] Flange for padlock (to prevent opening of collection bin)
[3] Magnet
[4] Cylinder
[5] Safety lock pin for maintenance (holds magnet in upper position)
[6] Material deflector (material separator)
[7] Product channel
[8] Safety switch (production stop when collection bin is opened)
[9] Proximity sensor ‘Channel closed’ (Production)
[10] Magnetic valve
[11] Junction box for sensors
[12] Proximity sensor ‘Channel open’ (Cleaning/removal of ferrous particles)
[13] Warning symbols
[14] Identification plate
[15] Service hatch
[16] Protection cover (safety cover)

The automatic external pole magnet separator uses two strong neodymium plate magnets to capture iron contamination from a free-fall product flow. The product channel contains a removable material deflector to guide the product flow closer to the magnetic field.

7.2 Scope of delivery

Check the shipment immediately upon delivery for:

- Possible damage and/or shortcomings as a consequence of transport. In the event of damage, ask the carrier for a transport damage report.

- Completeness.

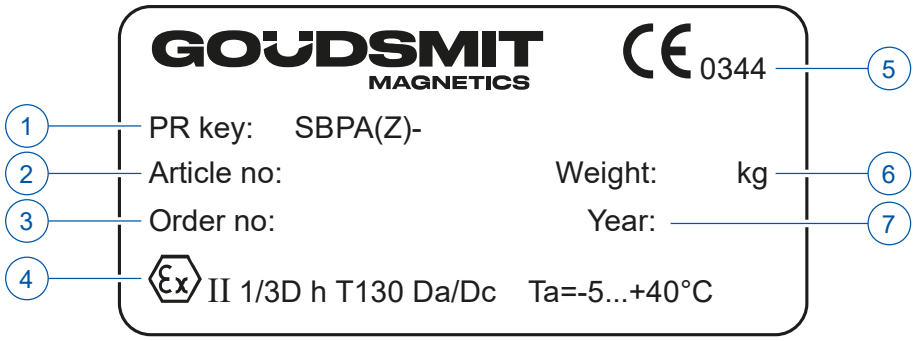
NOTICE

In the event of damage or incorrect shipment, contact Goudsmit Magnetics immediately. The contact details are provided on the title page of this manual.

7.3 Identification plate

The following identification data are shown on the device. The identification data are very important for maintenance of the device.

Always keep the identification data clean and legible. Always provide the article and order numbers when ordering spare parts, requesting service or reporting a malfunction.



[1] Product key
[2] Article number
[3] Order number
[4] ATEX Ex marking
[5] Inspection body number (Notified body number)
[6] Weight
[7] Year of manufacture

8 Transport and installation

WARNING

Entrapment hazard

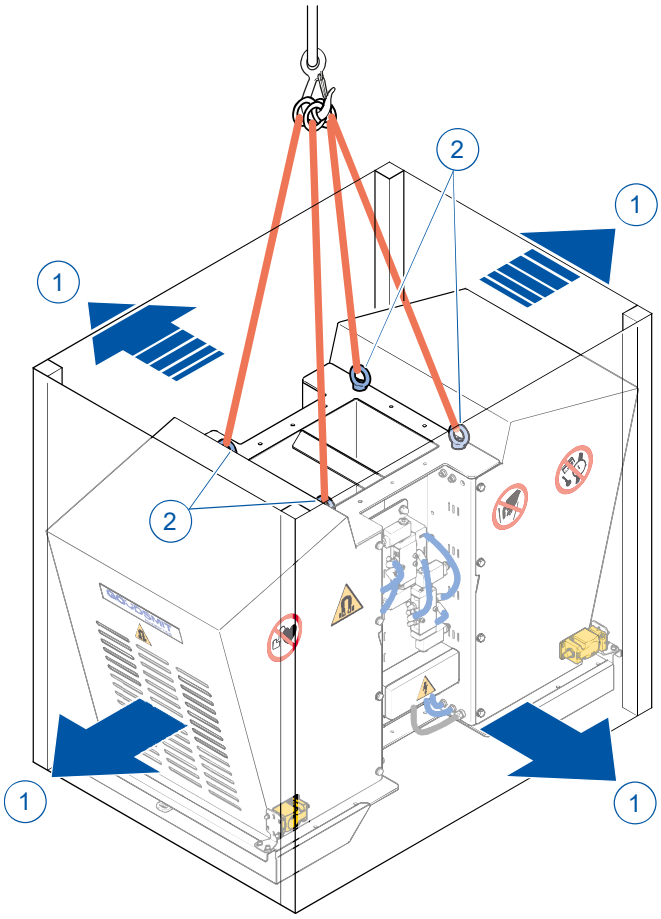
The device may become unstable in the crate during transport.

- ▶ While lifting the device, do not reach into the box with your hands. Fingers and hands may be trapped by the unstable packaging.

NOTICE

Take the following precautions:

- ▶ Work safely, provide ample work space and use dependable scaffolding, ladders and other tools so the device can be installed without any risks.
- ▶ The device permanently emits a magnetic force. See the Safety risks [▶ 6] section for the precautions that must be taken when working on the device.
- ▶ Only qualified personnel should work on the device.
- ▶ Ensure that there is sufficient clearance around the installation to install the device in the installation/structure and for operation, inspection and maintenance work to be carried out.
- ▶ Ensure that no external vibration is transferred to the device, as this can cause permanent loss of magnetic force.
- ▶ Only non-magnetic structural parts are permitted within the range of the magnetic field in order to prevent a negative impact on the removal of ferrous particles. In simple terms, the magnetic field may not be ‘short circuited’.
- ▶ Only use lifting/hoisting tools that are in good condition, and do not exceed the lifting capacity of the tools.
- ▶ The supply and discharge channels and structure must be sufficiently strong to bear the weight of the device with the captured ferrous particles.
- ▶ When installing the device, ensure that the free-fall height of your product is a **maximum of 0.4 metres**. A higher free-fall height will increase the speed of the product, resulting in poorer separation.

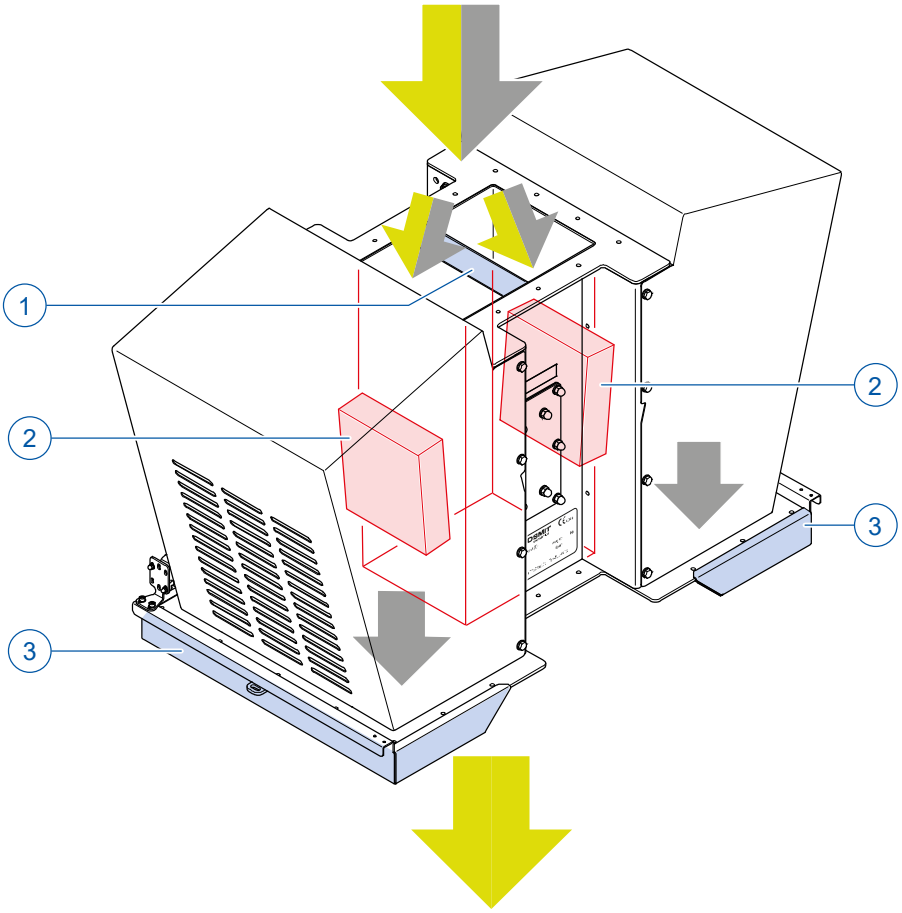


- Remove the lid of the crate. If necessary, remove several side panels [**1**].
- **Remove all transport aids.**
- Fit eyebolts with M8 thread [**2**] at the corners of the flange.
- Use suitable lifting/hoisting equipment that has sufficient capacity to support the weight of the device. The weight is indicated on the identification plate.
- Provide sufficient space around the construction to accommodate the device.
- Install the device free of mechanical stress and at the correct working height for the operating personnel. Mechanical stress on the device can cause deformation and other problems.
- Preferably mount the device in a product channel. The product channel must be strong enough to support the weight of the device and the raw product.

8.1 Preventing electrostatic discharges (earthing)

To prevent accumulation of electrostatic charge, a provision must be made to prevent potential differences between the construction/installation and the device. This can be done by installing a connection cable from the device to the construction/installation.

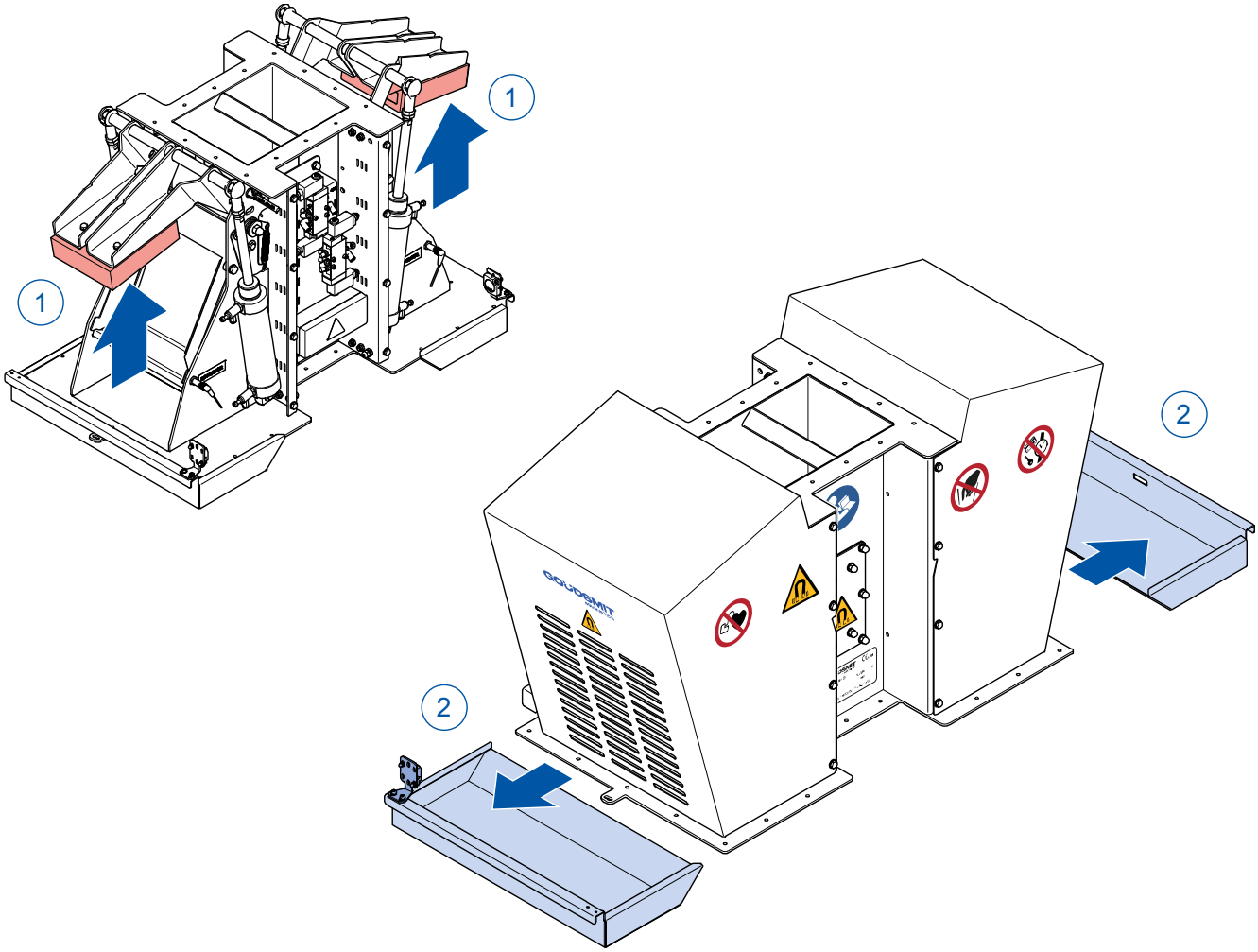
9 Operating principle



The product flow reaches the material deflector first [**1**]. This disperses the particles and guides the product flow along the two magnetic fields. The powerful neodymium plate magnets [**2**] capture the iron particles and hold them until the cleaning cycle starts.

A pneumatic controller carries out cleaning of the magnet. This is started via two 24 VDC signals, one for each side, and then runs completely automatically. During the cleaning cycle, both plate magnets will swing upwards, from vertical to horizontal. When that point is reached, both extractor plates are out of the product flow and separated from the magnets. The iron now falls off the extractor plates, into the collection bins [**3**]. Then the magnets move back into position to capture iron.

10 Automatic cleaning cycle with collection system

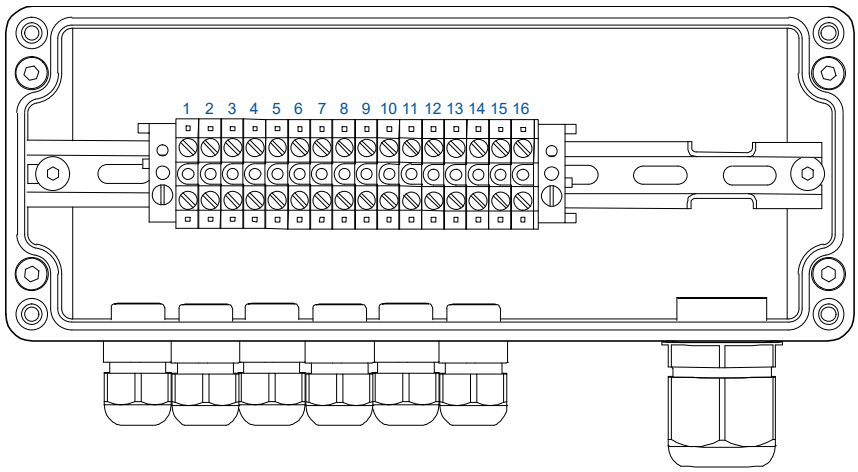


The device features an automatic cleaning system. This makes it possible to remotely activate a cleaning cycle during production stops.

The device is shielded with protection covers around the magnets to shield the danger of the magnets and moving parts. When the cleaning cycle starts, both magnets – including the extractor plate – move away from the product channel. Once in the off position (channel open) [**1**] the extractor plate will detach from the magnet, after which the captured iron particles will fall into the two collection bins.

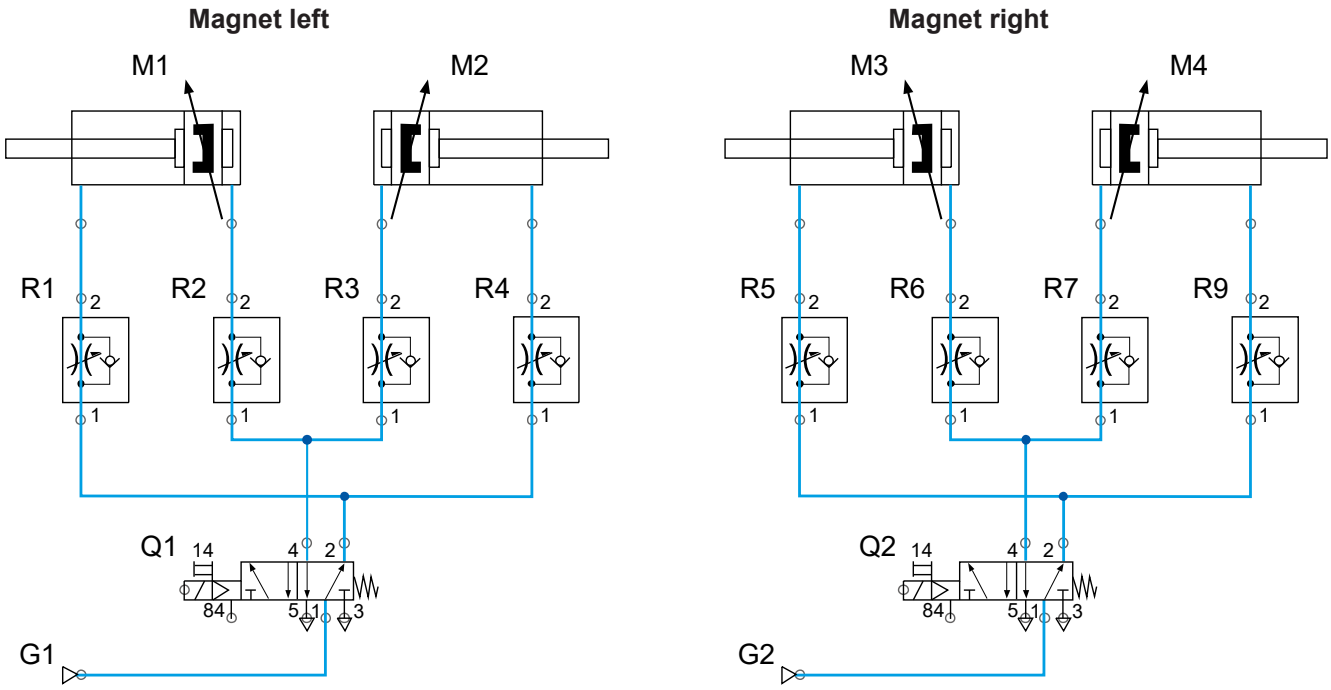
During inspection rounds, the collection bins [**2**] can be removed and the captured iron contamination analysed. For large amounts of contaminants, the collection bins can be replaced with discharge channels. These can be fitted to the flanges.

11 Junction box for sensors – external connection to control box (24 V)



No.	Colour	Sensor
1	Brown	Channel 1 open
2	Blue	
3	Black	
4	Brown	Channel 1 closed
5	Blue	
6	Black	
7	Brown	Channel 2 open
8	Blue	
9	Black	
10	Brown	Channel 2 closed
11	Blue	
12	Black	
13	Brown	Collection bin 1 closed
14	Blue	
15	Brown	Collection bin 2 closed
16	Blue	

12 Pneumatic diagram



13 Maintenance and inspection

13.1 General guidelines

WARNING

Risk of crushing

In view of the large magnetic forces, replacing the internal magnet components is extremely dangerous as they are difficult to handle. Replacement may ONLY be carried out by appropriately qualified personnel or (ideally) by Goudsmit Magnetics technicians.

If the replacement is carried out by unqualified personnel, the warranty will be void.

Goudsmit Magnetics cannot be held liable for any consequential damage to people and/or materials if this prohibition is ignored.

WARNING

Caution

- ► Perform all work on the device while the product flow is stopped and the compressed air is shut off via the on/off valve.
- ► Be careful with tools and ferrous objects. The magnetic force is permanently present.

The device is equipped with safety provisions and safety guards. Ensure that persons working on or in the immediate vicinity of the device wear adequate protection equipment, such as eye and hearing protection, overalls, gloves, safety glasses, helmet and steel-toed shoes.




Magnetic systems attract dust and ferromagnetic particles. Regular cleaning is therefore necessary. A clean magnet separates ferromagnetic parts significantly better than a contaminated magnet.

- Provide operating personnel with timely notice concerning planned inspections, maintenance and repairs, as well as troubleshooting. If necessary, designate someone who is responsible for the proper supervision.
- Check regularly that all warning pictograms and the identification plate are still present in the correct location on the device. Affix new ones in the original location(s) if they are lost or damaged.
- The best way to clean all parts is with a brush and compressed air. Fine particles can be removed with a clean cloth if necessary.
  When used in the food industry: Clean the parts with special cleaning fluids that will not damage the materials.

13.2 Frequency of maintenance

Action	Daily	Monthly	Semi-annually	Annually
Automatic cleaning (► Automatic cleaning cycle with collection system [▷ 20]).	At least 2x a day [1]			
Empty collection bin (► Emptying collection bin [▷ 25]).	● [1]			
Clean magnet manually (► Manually cleaning plate magnet [▷ 26]).		● [2]		
Inspect magnet for dents and wear.			●	
Inspect product channel seal (► Replacing product channel seal [▷ 27]).			●	
Inspect service door seal (► Replacing inspection hatch seal [▷ 28]).			●	
Inspect material deflector and extractor plate for wear.			●	
Measure flux density of plate magnets (► Measuring flux density of plate magnet [▷ 29]).				●

[1] The frequency depends on the amount of ferrous contamination.

[2] The frequency of the cleaning process depends on the capacity of your product flow and the amount of contamination.

NOTICE

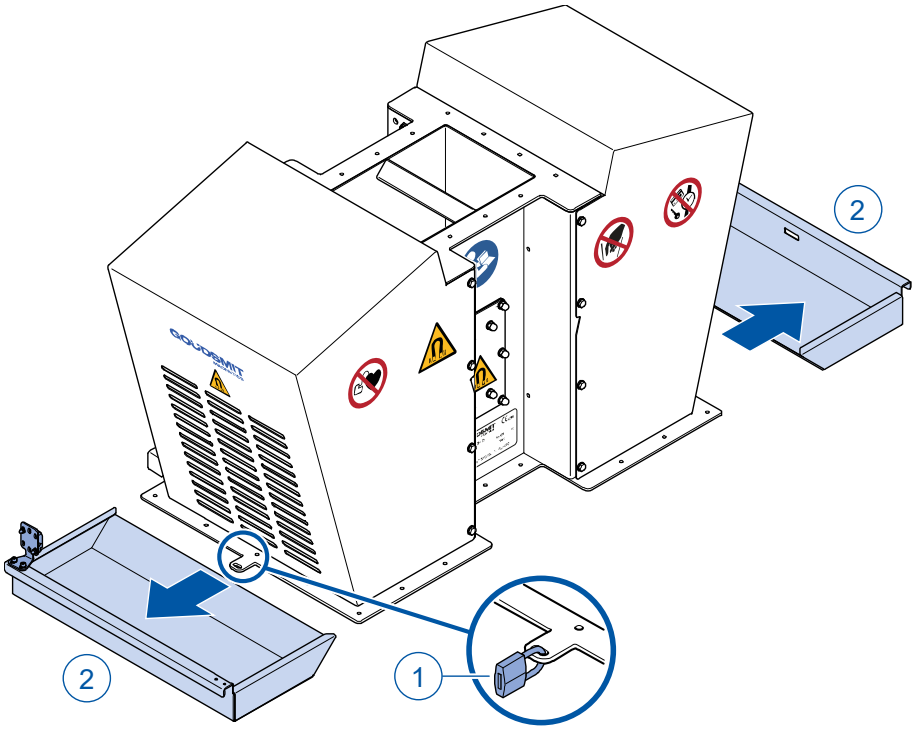
Goudsmit Magnetics offers an annual maintenance inspection, including replacement of the seal(s) and an inspection report with certificate for the magnets.

13.3 Emptying collection bin

CAUTION

Take into account the weight of a filled collection bin. A filled collection bin can easily weigh 25 kg.

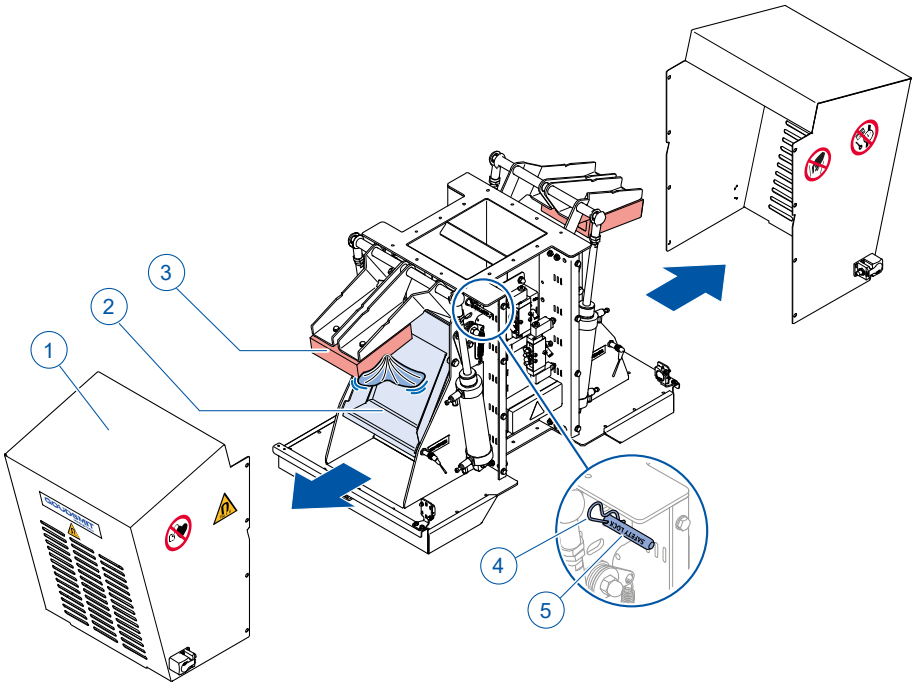
► Take the necessary precautions or ask a second person to assist when emptying the collection bin.



Check the amount of ferrous contamination in the collection bin daily. Proceed as follows:

- Stop the product flow.
- Deactivate the device.
- If present, remove the padlock from the flange [**1**].
- Empty the collection bin [**2**] with the assistance of at least one other person. For large amounts of contamination, replace the collection bins with discharge channels.
- Fit the collection bin back in place.
- If present, secure the collection bin with the padlock.
- Activate the device.
- Production can now be safely started.

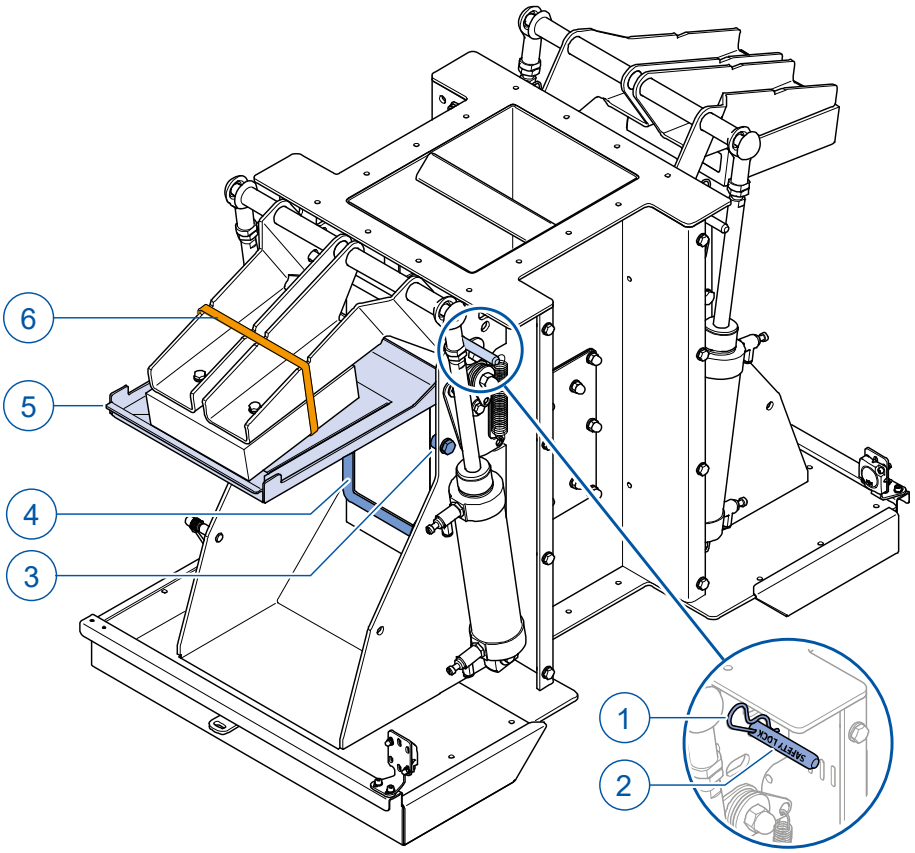
13.4 Manually cleaning plate magnet



Manually clean the plate magnet at least once every six months, or more often if necessary. Proceed as follows:

- Stop the product flow.
- Run a cleaning cycle.
- Leave the device in the cleaning position (magnets are horizontal).
- Switch off the compressed air to the solenoid valves.
- Remove the protection cover [**1**].
- Remove the clips [**4**] and take the safety lock pin [**5**] from the storage holder.
- Insert the safety lock pin through the corresponding holes and secure the pin with the clips.
  The plate magnet is now locked in place.
- Cover the opening to the product channel to prevent contaminants from entering the product channel during cleaning.
- Clean the extractor plate [**2**] and plate magnet [**3**] with a brush or compressed air. Use a clean cloth for thorough cleaning.
- Remove the safety lock pin and put it back in the storage holder.
- Fit the clips in the safety lock pin.
- Fit the protection cover.
- Switch the compressed air on again.
- Production can now be safely started.

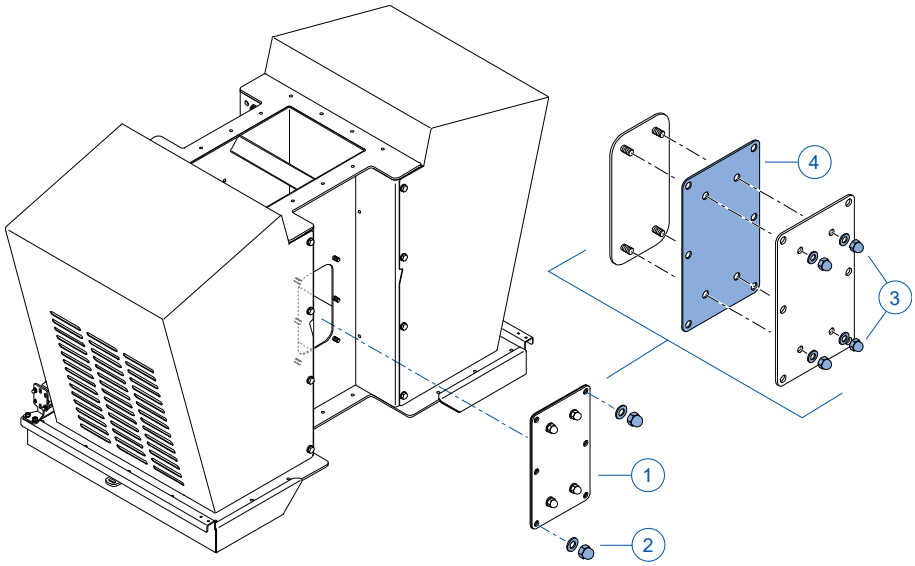
13.5 Replacing product channel seal



We recommend replacing the seal annually. Proceed as follows:

- Stop the product flow.
- Run a cleaning cycle.
- Leave the device in the cleaning position (magnets are horizontal).
- Remove the protection cover.
- Remove the clips [**1**] and take the safety lock pin [**2**] from the storage holder.
- Insert the safety lock pin through the corresponding holes and secure the pin with the clips.
  The plate magnet is now locked in place.
- Remove the left and right cams [**3**].
- Press the extractor plate against the plate magnet and secure with a lashing strap [**6**] so that it does not fall down.
- Remove the seal [**4**] and clean the opening on the product channel.
- Fit a new seal.
- Remove the lashing strap. The extractor plate [**5**] now lowers.
- Refit both cams [**3**].
- Remove the safety lock pin and put it back in the storage holder.
- Fit the clips in the safety lock pin.
- Fit the protection cover.
- Switch the compressed air on again.
- Production can now be safely started.

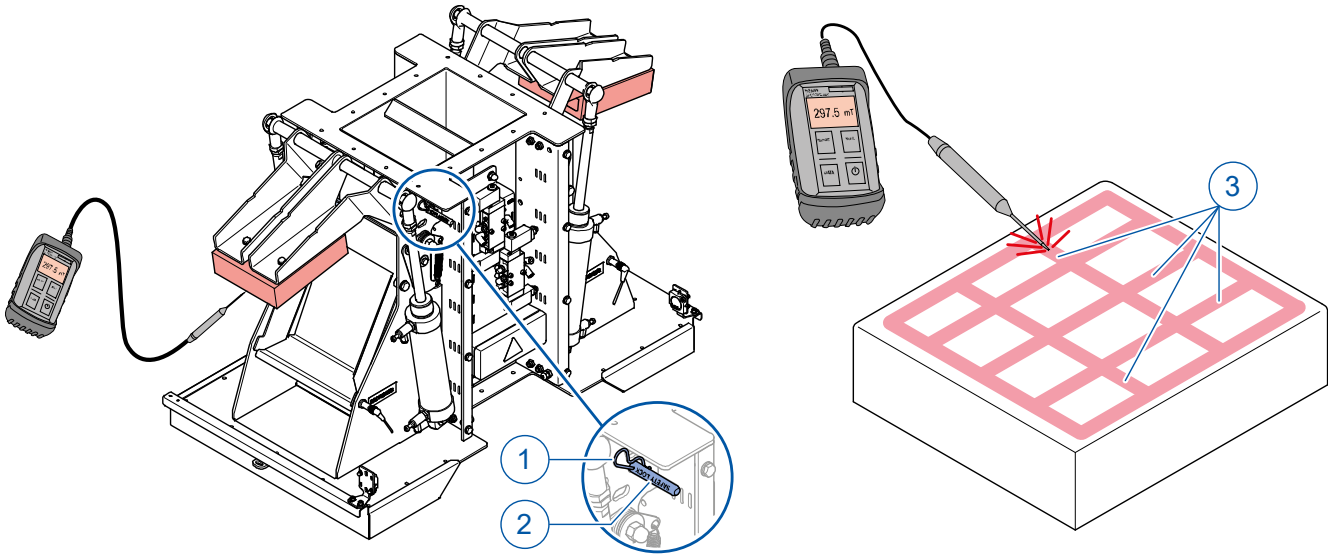
13.6 Replacing inspection hatch seal



We recommend replacing the seal once every three years. Proceed as follows:

- Stop the product flow.
- Run a cleaning cycle.
- Deactivate the device.
- Remove the outer six nuts with washers [**2**].
- Remove the service door from the product channel [**1**].
- Clean the opening on the product channel.
- Remove the nuts with washers [**3**] from the service door.
- Remove the seal [**4**], clean the parts.
- Fit a new seal.
- Refit the service door.
- Fit the service door back on the product channel.
- Activate the device.
- Production can now be safely started.

13.7 Measuring flux density of plate magnet



The magnets must be measured at regular intervals to check their magnetic flux density and determine if the magnetic force has decreased. Use a suitable gauss meter/tesla meter to measure the poles at the surface of the magnet (the unit is tesla, gauss, kA/m or oersted). Goudsmit Magnetic Systems B.V. can perform magnet measurements on location, if desired. To perform a flux density measurement, proceed as follows:

- Stop the product flow.
- Run a cleaning cycle.
- Leave the device in the cleaning position (magnets are horizontal).
- Deactivate the device.
- Remove the protection cover.
- Remove the clips [**1**] and take the safety lock pin [**2**] from the storage holder.
- Insert the safety lock pin through the corresponding holes and secure the pin with the clips.
- The plate magnet is now locked in place.
- Using the gauss meter/tesla meter, move along the poles [**3**] of the magnet. Record the highest measured value.
- The measured values may fluctuate for various reasons, such as the position (angle) of the probe on the magnet, the thickness of the probe and the reproducibility of the measurement.
- Record the highest measured value. Using the accompanying data sheet, check whether the measured value falls within the permitted range for the peak value.
- With the exception of the front and rear poles, all poles must have a value within 10% of the highest measured value.
- Remove the safety lock pin and put it back in the storage holder.
- Fit the clips in the safety lock pin.
- Fit the protection cover.
- Activate the device.
- Production can now be safely resumed.

14 Troubleshooting

14.1 Troubleshooting table

Use the following table to search for faults, determine the possible cause and find the remedy. In the event of a fault that is not in the table, contact Goudsmit Magnetics customer service.

Problem	Possible cause	Solution
Magnet does not separate ferromagnetic particles completely or at all.	Magnets are heavily contaminated with ferrous particles.	Clean the magnets more often, if necessary.
		Use a permanent magnet to check whether the separated particles are ferromagnetic.
	Particles that are not attracted are not sufficiently ferromagnetic.	Check a non-separated ferrous particle with a strong permanent magnet to determine whether it is actually a ferromagnetic particle.
	Iron parts near the magnets reduce the iron-removal capacity.	Check the magnetic behaviour of the parts installed near the magnet by holding a ferrous part close to the magnets. If there are parts that react to the magnet, replace them with non-magnetic parts, such as those made from stainless steel.
Product flow decreases or causes blockage.	Excessively large iron particles block the product flow.	Find the cause and solve the problem. If necessary, place a mechanical sieve in the product channel upstream of the device.
	Magnets are heavily contaminated with ferrous particles.	Clean the magnets more often, if necessary.
Poorly moving or non-moving magnets.	Air pressure is too low.	Check the air supply.
	Air connection or air hose is broken or loose.	Replace the part or reconnect properly.
	Sensor defective or not connected.	Find the cause and solve the problem.
Product leaks from the device.	Overpressure in product channel.	Use a different type of magnetic separator.
	Grain size <0.5 mm.	
	Air leakage from pneumatic system.	Check pneumatic hoses for damage.
	Product channel seals are worn.	Replace seals.
Metal is found at a later process stage.	Reduction of magnetic force.	Check the flux density of the magnets.
	Magnets are too saturated with ferrous contamination.	Clean the magnets more often, if necessary.
Device does not work.	Collection bin is open.	Close the collection bin.
	Protection cover is removed.	Refit the protection cover.
	Sensor is faulty.	Replace the sensor.

15 Service, storage and disassembly

15.1 Customer service

Have the following information to hand when contacting customer service:

- Data from the identification plate.
- Type and scope of the problem.
- Time when the problem occurred and any accompanying circumstances.
- Presumed cause.

15.2 Spare parts

Due to the robust construction and quality of Goudsmit Magnetic Systems B.V. products, the device has a high operational reliability.

Spare parts are mostly parts that are subject to wear. These include:

- seals
- material deflector
- extractor plate

Other parts, such as:

- sensor
- air coupling and air hose
- solenoid valve

- When ordering, state the article and order numbers that appear on the identification plate.
- For further information, please contact us by +31 (040) 22 13 283 or consult our website.

15.3 Storage and disposal

Storage

If the device will not be used for an extended period, it is recommended to store it in a safe, dry place and protect fragile and/or sensitive parts.

Disposal

When separately disposing of and/or destroying the parts of the device, the different properties of the components (magnets, iron, aluminium, electrical parts, insulation materials, etc.) must be taken into account. It is recommended to leave this task to a specialized company, observing local regulations regarding industrial waste.

CAUTION

Be aware of the presence of permanent magnetism.

Inform the waste handler about the dangers of magnetism. See also the Safety risks [▶ 6] section.

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