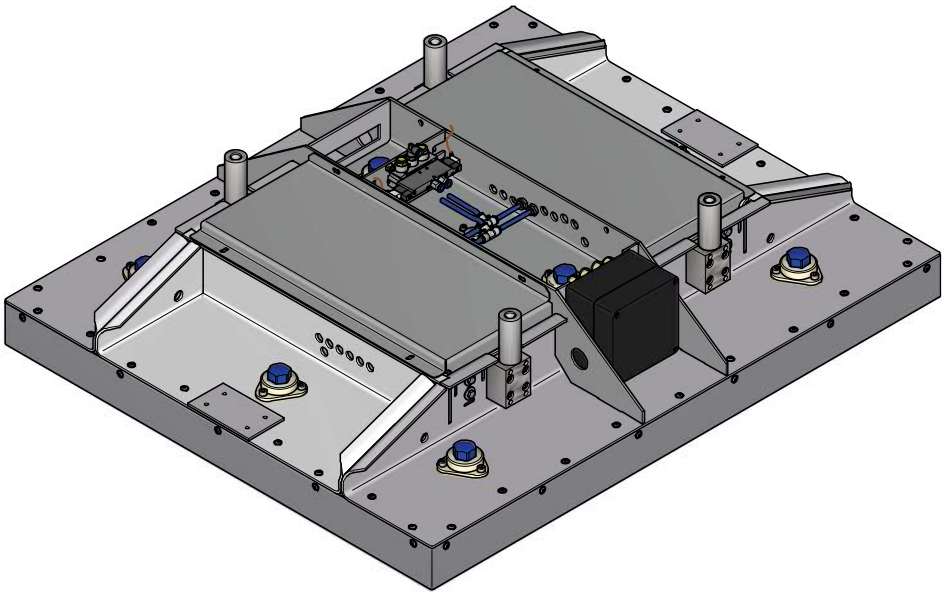
GOUDSMIT MAGNETICS

User Manual

Magnetic palletizer and depalletizer, type HPA

Suitable for palletizing or depalletizing empty tins and aerosol cans, filled and sealed tins and filled glass jars with steel lids.



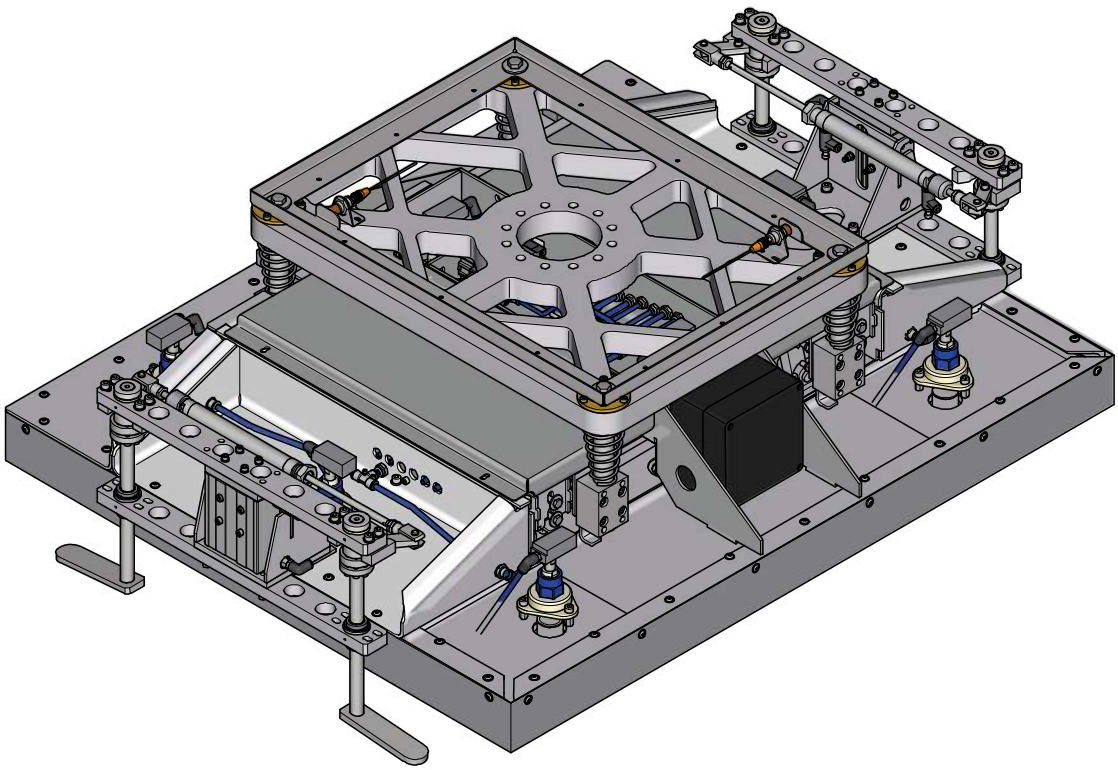


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Table of contents

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 HPA magnetic palletizer and depalletizer is 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

CAUTION

Conditions for safe use

- ► Do not switch on the plate magnet until it is stable and stationary on the products.
- ► Do not switch off the plate magnet until it is fully stationary and in position.
- ► There must be no steel objects near the device when it is switched on (minimum distance is 100 mm).
- ► Avoid jerky movements and sudden acceleration and deceleration when the device is loaded with products.

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.




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 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.

2.5 Emergency stop

WARNING

Switched on magnet!

If there is no air pressure to the device, for example after an emergency stop, the plate magnet may drop to the lowest position, depending on the type of device.

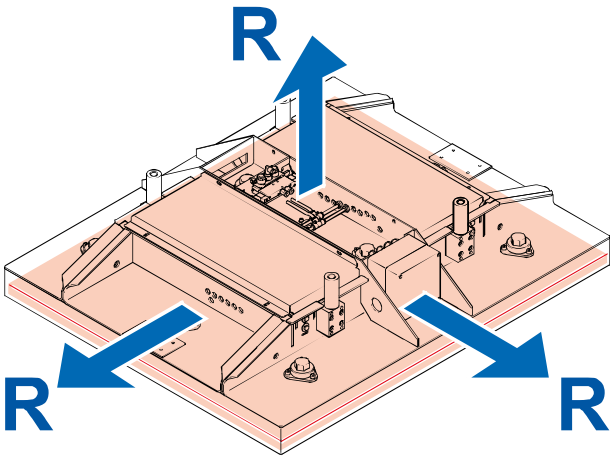
3 Standards and directives

3.1 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 2 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 1 metre(s) of the device.

Employees who are pregnant and the general public may not come within a radius ‘R’ of 0.25 metre(s) of the device.

Limit values for occupational exposure (general and for limbs) are not exceeded.

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.
- 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 Range of application

Magnetic palletizers use magnetic forces to hold tins and jars with screw lids suspended without risk. Because they are not dependent on power, a layer of products remains hanging as long as you like. A sophisticated guide mechanism ensures that products are picked up and transported smoothly and quickly.

Magnetic palletizers are suitable for palletizing and depalletizing:

- empty tins and aerosol cans
- filled and sealed tins
- filled glass jars with steel lids

These can be supplied and/or carried away on a pallet or conveyor belt, for example.

5.2 Description of function

Through use of a magnetic contact plate, products that has ferromagnetic properties can be lifted and transported. The device can be switched on or off by operating the internal magnetic plate to push the magnetic field away. As long as the magnetic plate is active (plate lowered), the product continues to hang from the device. As soon as the magnetic plate is lifted (plate raised), the products no longer stick to the contact plate.

5.3 Environmental conditions

The magnetic palletizer is robustly constructed and conserved, so no special environmental conditions are required.

The ambient temperature where the device is used must be between +10 and 50 °C. The device and the magnetic plate both have a dust and water resistance rating of IP50.

5.4 Free space

Ensure there is at least 0.5 metre of space around the device for operation and inspection and maintenance work.

5.5 Air pressure

Compressed air to operate the air cylinders is 6 to 8 bar.

The required air pressure for the vacuum system is 4 to 6 bar.

5.6 Voltage/power

Connect 24 VDC supply voltage to the terminals in the terminal box.

5.7 Vibrations

The vibrations caused by the magnetic palletizer must be damped by the manner in which the magnet is suspended.

Ensure that the magnetic palletizer is not exposed to external vibrations. This is because the magnets in the device are ceramic and therefore very brittle. This can cause magnet breakage or permanent loss of magnetic force.

5.8 Noise

The noise level of the device is very low.

6 Product information

6.1 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.

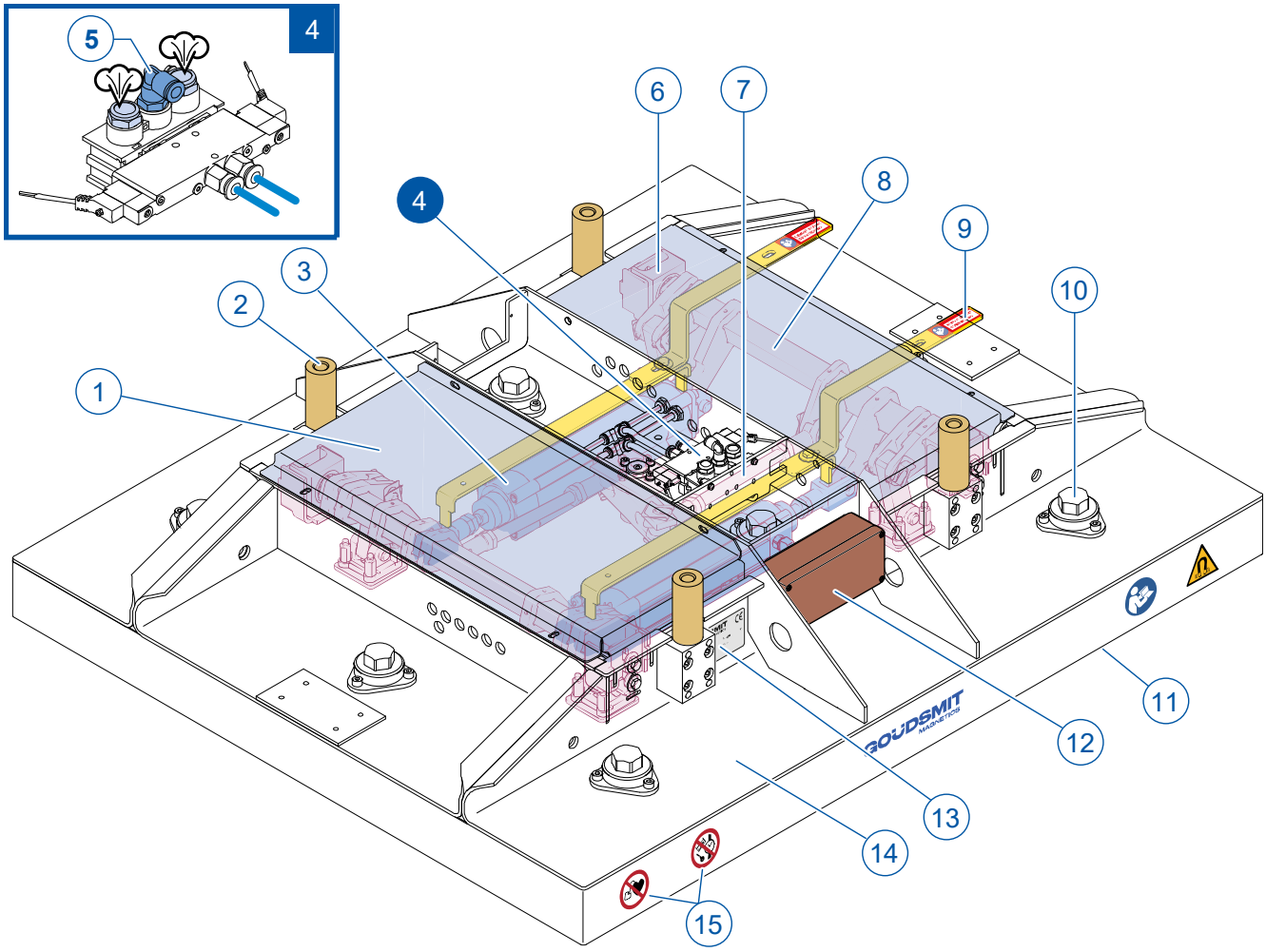
- Completeness.

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.

6.2 Overview of standard version

With switchable magnetic force, products can be moved while hanging from the contact plate of the magnetic palletizer.



[1]	Service hatch	[6]	Bearing block	[11]	Contact plate
[2]	Mounting bush	[7]	Parallel guide	[12]	Connection box
[3]	Pneumatic cylinder	[8]	Main shaft	[13]	Identification plate
[4]	Air connection	[9]	Transport brackets	[14]	Housing
[5]	Air connection point	[10]	Adjusting bolt, contact plate	[15]	Warning labels

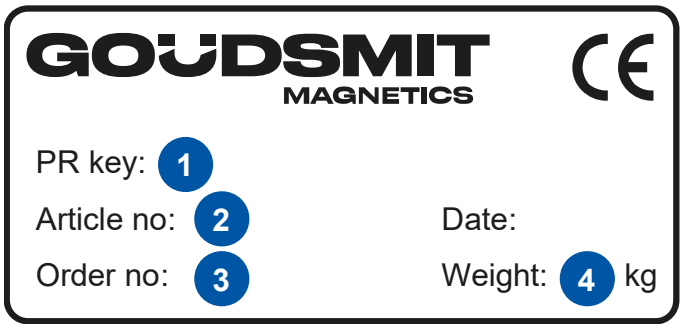
6.2.1 Components

- A *connection box* - for connection of sensors and solenoids at the control system.
- An *air connection* - air supply to the pneumatic *cylinders* to move the magnet. These *cylinders* cause the plate magnet to move vertically via the *main shafts*.
- 4 *mounting bushes* - for lifting or hanging the magnetic palletizer.
- *Spring suspension unit* – this is a flexible guideway that prevents product damage and enables correct positioning.
- The *parallel guide* ensures that the plate magnet always moves parallel and does not jam, even if the load to be transported is not hanging from the middle of the magnetic palletizer.
- The *dampers* serve to absorb impacts caused by placing the device on the product.

6.3 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.



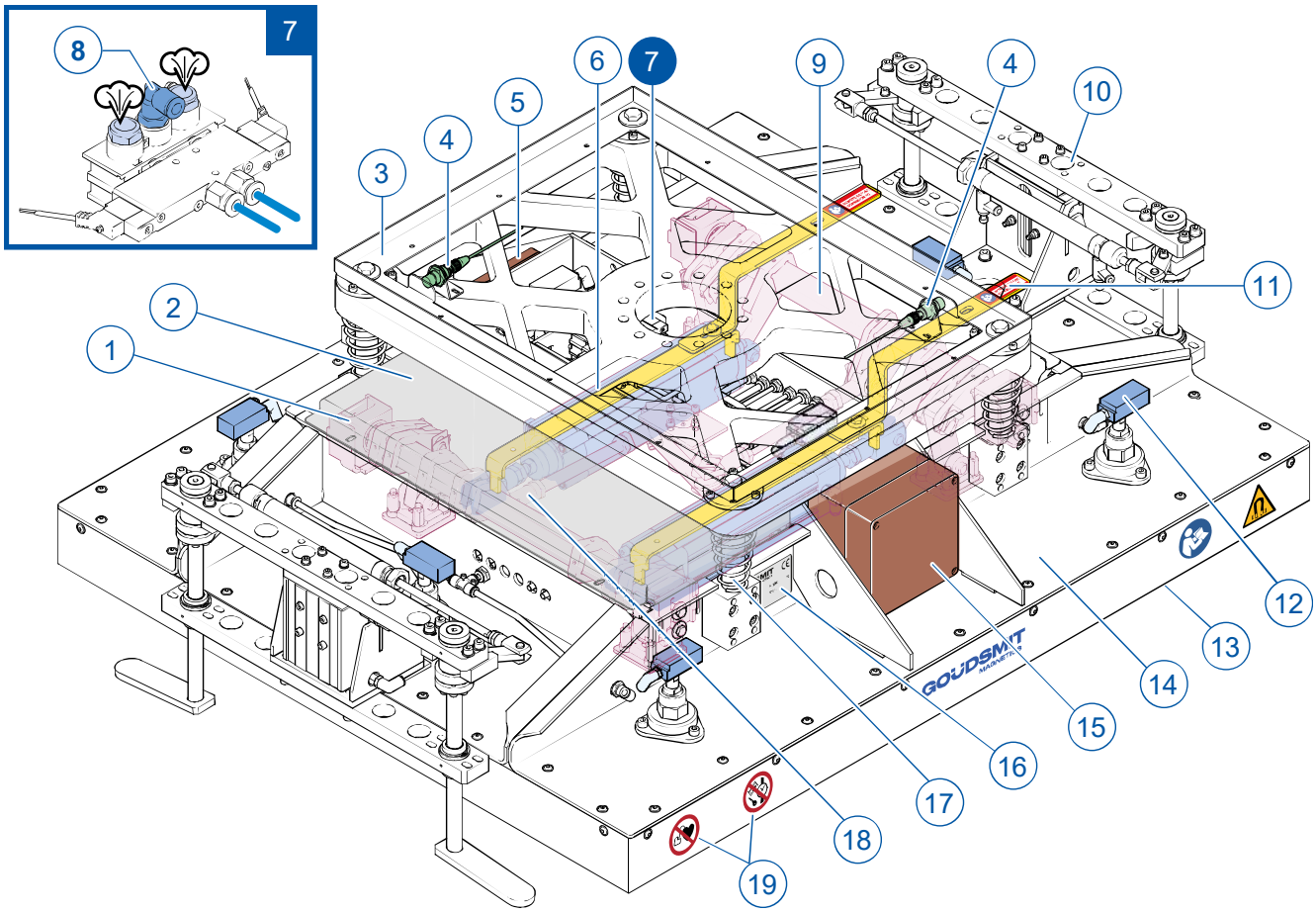
[1]	Product key	[3]	Order number
[2]	Article number	[4]	Weight

6.4 Service life

Depending on the conditions of use and the shape of the product to be processed (tin or bottle), a service life of 5-10 years is expected for the contact plate and 10 years for the complete device.

The service life of the suction cups is estimated to be one million cycles.

6.5 Overview drawing with all modules

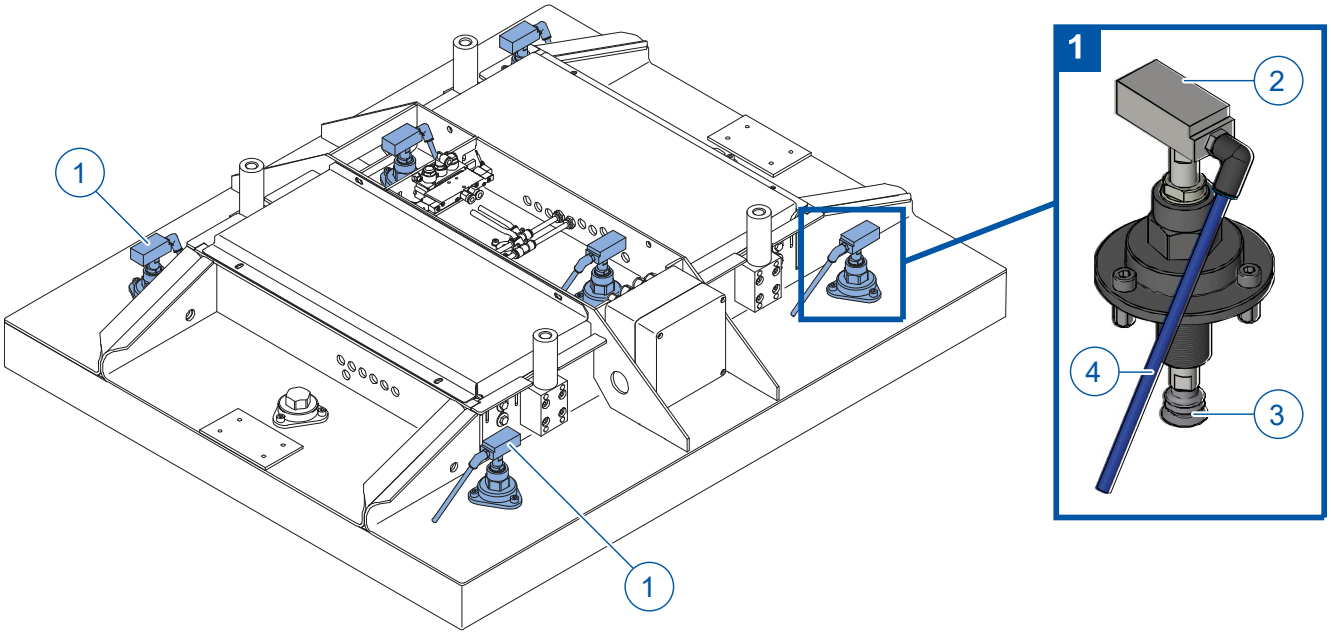


[1] Bearing block
[2] Service hatch
[3] Mounting frame for robot arm
[4] Stability sensor
[5] Connection box standard
[6] Pneumatic cylinder
[7] Air connection
[8] Air connection point
[9] Main shaft
[10] Pallet gripper
[11] Transport bracket
[12] Vacuum unit with suction cup
[13] Contact plate
[14] Housing
[15] Connection box pallet grippers
[16] Identification plate
[17] Spring suspension unit
[18] Parallel guide
[19] Warning labels

6.6 Modules

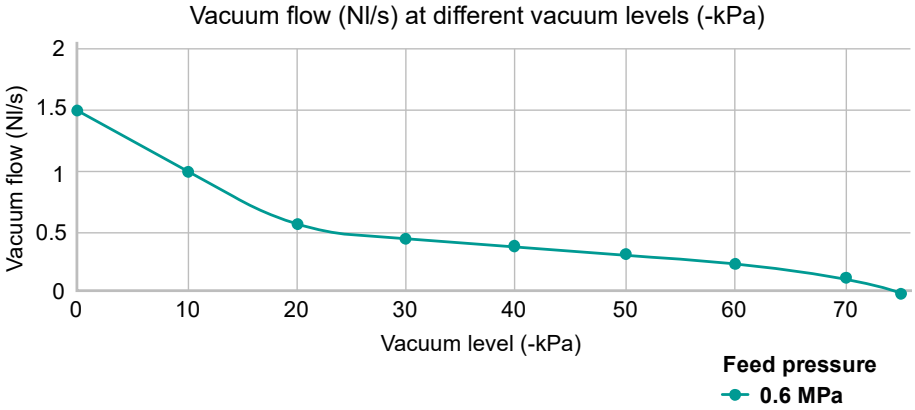
6.6.1 Vacuum system

The magnetic palletizer can be equipped with a vacuum system to pick up and move a separator sheet (layer) made of various materials.



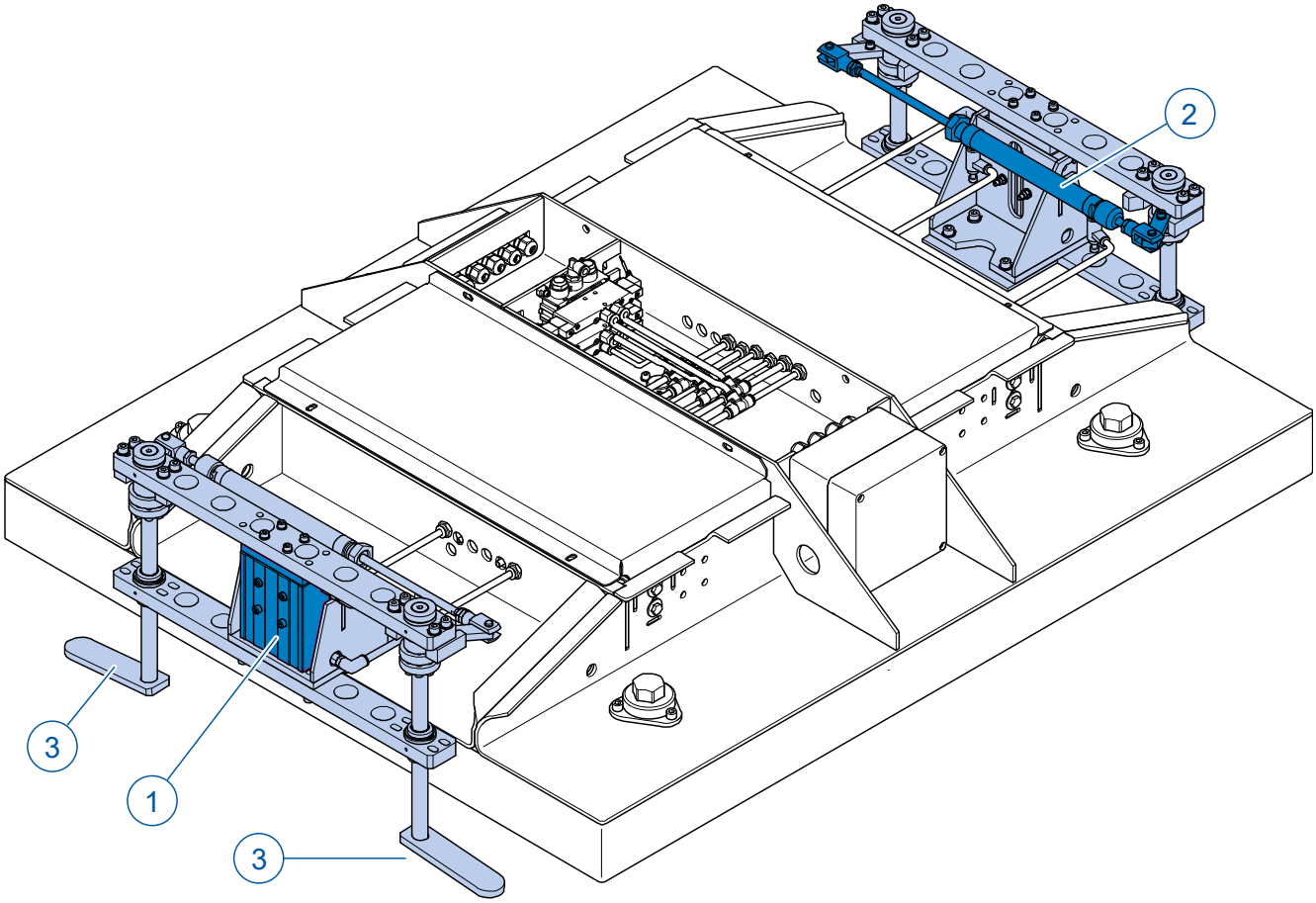
[1]	Vacuum unit	[3]	Suction cup
[2]	Vacuum pump	[4]	Air hose

- The vacuum system consists of a number of vacuum units [**1**] with a vacuum pump [**2**] on top and a suction cup [**3**] on the bottom. The assembly is switched on and off centrally by a 3/2 valve. There is one connection on the magnetic palletizer for Ø8 mm air hose, which branches further to all the vacuum units.
- Connected to the vacuum pump is a Ø8 mm air hose [**4**] that is interconnected with all the other vacuum pumps. The vacuum is switched on and off from the central control unit. The operating pressure is 4 to 6 bar.
- The vacuum pump works like a venturi. Air pressure is applied to the inlet. The airflow is constricted internally, creating a vacuum at the tube connection. The vacuum is directed through the tube to the suction cup, causing the suction cup to contract and apply suction.
- When a layer is picked up or set down, the vacuum switches on via the 3/2 valve. To release the layer, the 3/2 valve is switched off, stopping the vacuum.



The graph is based on an operating pressure of 6 bar and a vacuum flow of 0.98 Nl/s (normal litres per second).

6.6.2 Pallet grippers

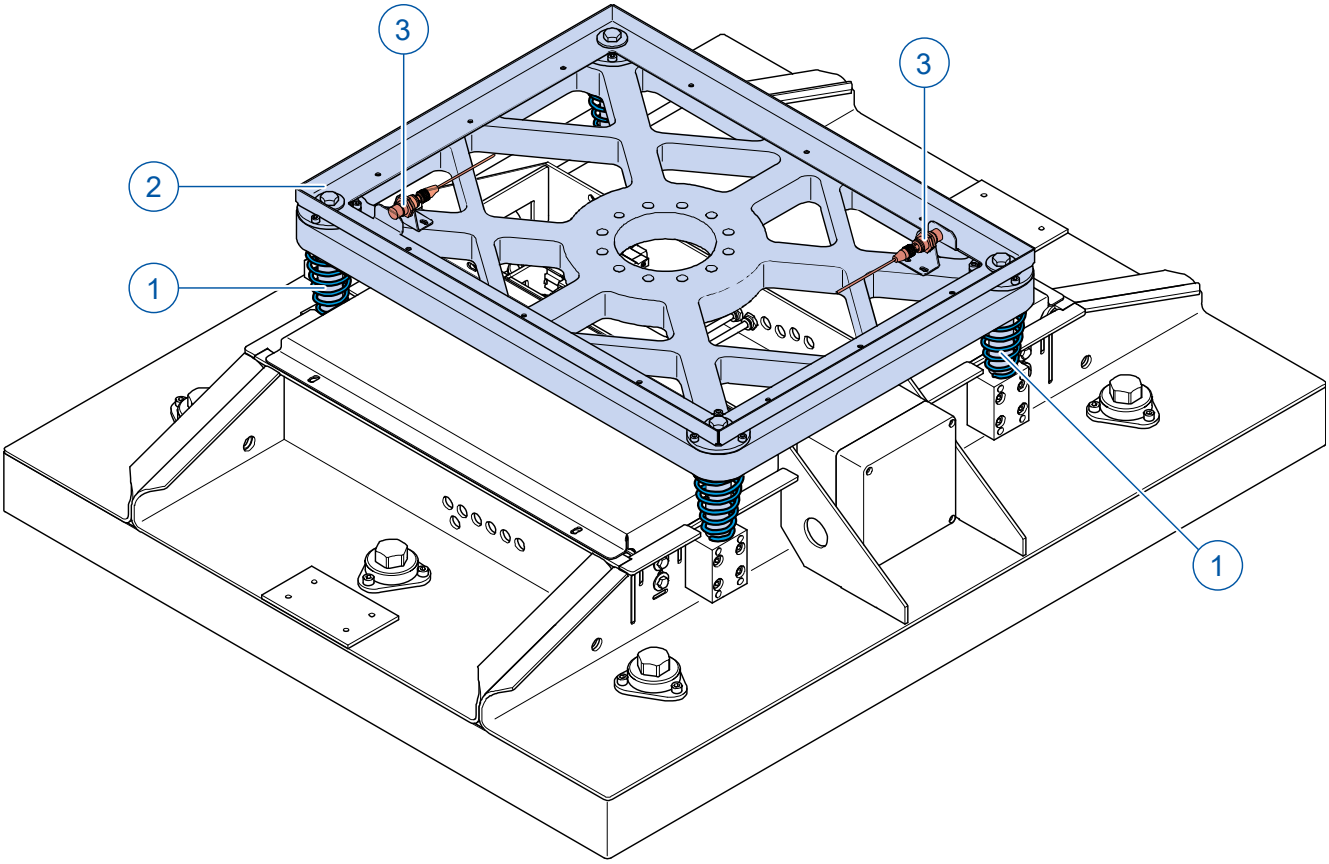


[1] Lifting cylinder [2] Rotation cylinder [3] Forks

The magnetic palletizer can be equipped with pallet grippers to pick up and move pallets.

The pallet gripper option consists of a set of two. The pallet grippers have a lifting cylinder [**1**] (Festo DFM-32-80-P-A) for the vertical stroke of the forks, to clamp the pallet. The rotation cylinder [**2**] swings the forks [**3**] in and out.

6.6.3 Spring suspension unit



[1] Spring suspension unit [2] Mounting frame for robot arm [3] Stability sensor

The magnetic palletizer can be equipped with a spring suspension unit, as an interface between the robot arm and magnetic palletizer. The mounting frame [**2**] is fitted with spring suspension to compensate for variations in the product layer and any misalignment. The proximity switches [**3**] can be used for position determination and detection of an incomplete product layer.

7 Transport and installation

The magnetic palletizer uses compressed air (7±1 bar) to move the plate magnet inside the device. Compressed air is controlled by a 5/2 valve, which is electrically operated.

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 may 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 use lifting/hoisting tools that are in good condition, and do not exceed the lifting capacity of the tools.

7.1 Transport

WARNING

Note

The device permanently emits a magnetic force.

Observe the safety instructions for transport in the Safety risks [▶ 6] section.

WARNING

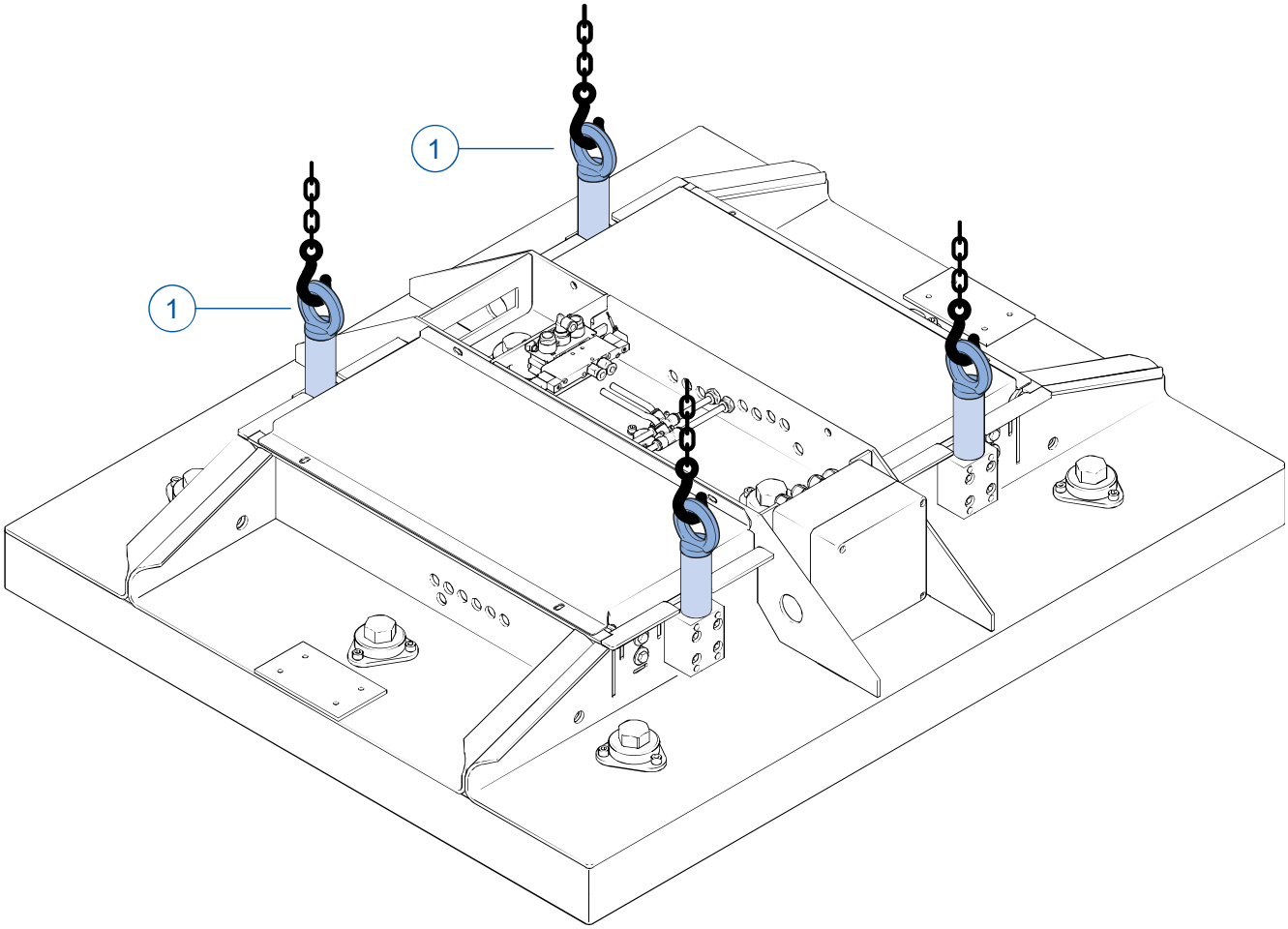
Make sure that no one is under the load during lifting and transport.

DANGER

Risk of entrapment

Do not place your hands inside the crate during lifting.

- Never place the device on a ferromagnetic surface (e.g. on a steel roller conveyor or the fork of a forklift). All ferromagnetic parts are strongly attracted to the plate magnet. This can cause dangerous situations.
- Always place a wooden or plastic pallet under the device.



- Fit lifting eyes (not supplied) in the mounting bushes [**1**]. Lift the magnetic palletizer by the four lifting eyes or by the mounting frame for the robot arm.
- Only use lifting/hoisting tools that are in good condition, and do not exceed the lifting capacity of the tools. The weight of the device is shown on the identification plate.
- Note the uneven weight distribution.
- If the product pattern is presented asymmetrically under the magnetic palletizer, care must be taken during installation to ensure that the device is installed in accordance with the (Palletizing instructions [▶ 24]).

7.2 Installation

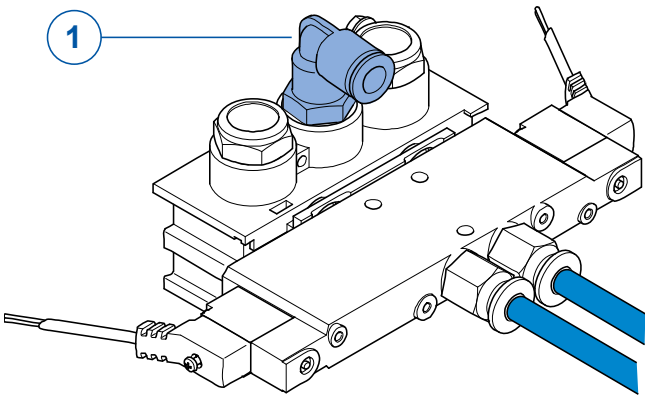
CAUTION

Risk of injury from edges and sharp corners

► Take extremely care when carrying out work near sharp edges and pointed corners.

► Wear protective gloves if you are unsure.

7.3 Connecting compressed air



For on and off switching of the plate magnet, the device is connected to compressed air [**1**] with an operating pressure of 6 bar to 8 bar. Use a Ø8 mm air hose for this purpose. Air consumption is 8 litres per stroke with two cylinders and 6 bar operating pressure.

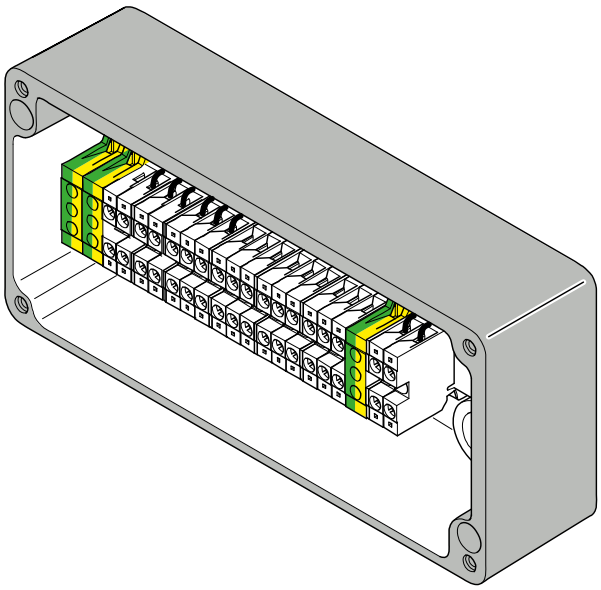
7.4 Electrical connection

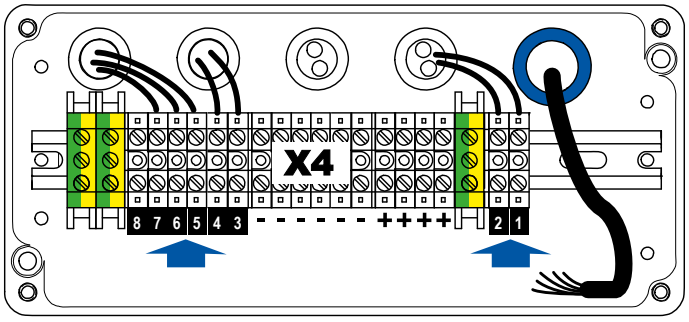
The sensor connection box contains the wiring for the sensors. These sensors detect things such as whether the cylinder is ‘in’ or ‘out’. The outgoing signal can be used to determine whether the plate magnet is up (‘off’) or down (‘on’).

Standard connection box

The standard connection box is factory wired with connections to terminals 1-7 for the power supply, plate magnet and spring suspension system.

Optionally, terminal 8 is factory wired if the magnetic palletizer is equipped with the vacuum system.

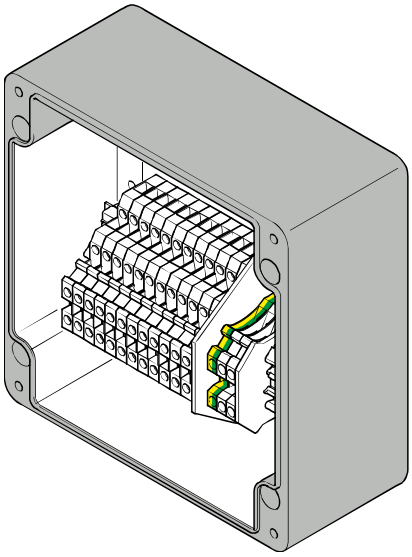


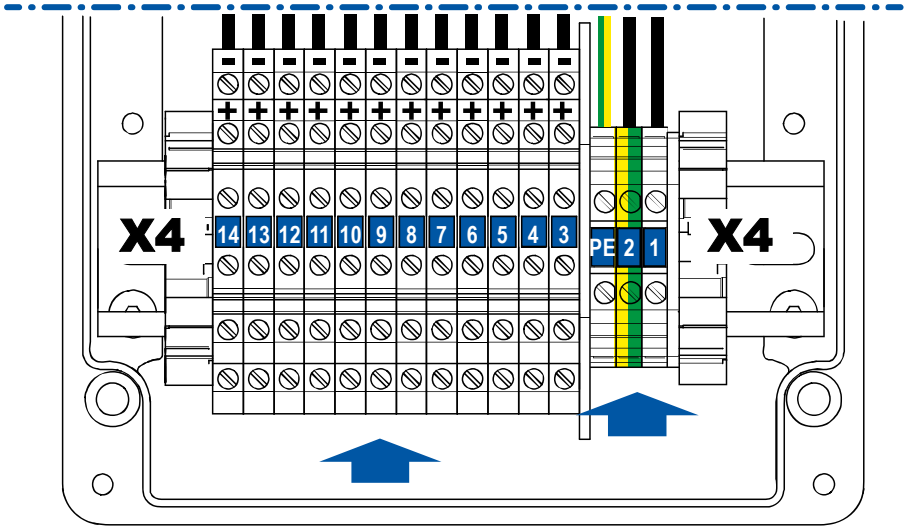


The terminals allow the sensors to be read and the solenoid valves to be controlled.

Port	Circuit	Action
Terminal 1	Power supply	24 V_{dc}
Terminal 2	Power supply	0 V_{dc}
Terminal 3	Sensor 1	Plate magnet Up
Terminal 4	Sensor 2	Plate magnet Down
Terminal 5	Sensor 3	Suspension unit pressed down - left side
Terminal 6	Sensor 4	Suspension unit pressed down - right side
Terminal 7	Solenoid valve 1	Plate magnet Up/Down
Terminal 8	Magneetventiel 2	Vacuum system on/off (option)

Connection box pallet gripper





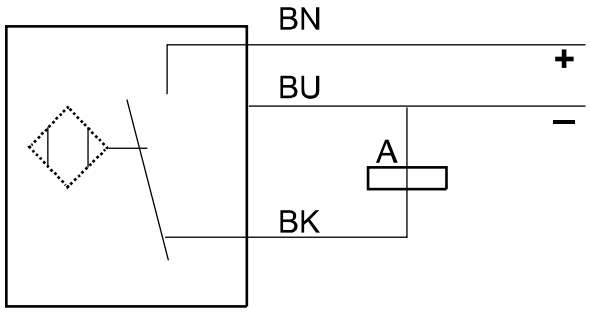
The terminals allow the sensors to be read and the solenoid valves to be controlled.

Port	Circuit	Action
Terminal 1	Power supply	24 V_{dc}
Terminal 2	Power supply	0 V_{dc}
Terminal 3	Sensor 1	Pallet gripper 1 – Forks up
Terminal 4	Sensor 2	Pallet gripper 1 – Forks down
Terminal 5	Sensor 3	Pallet gripper 1 – Forks left
Terminal 6	Sensor 4	Pallet gripper 1 – Forks right
Terminal 7	Sensor 5	Pallet gripper 2 – Forks up
Terminal 8	Sensor 6	Pallet gripper 2 – Forks down
Terminal 9	Sensor 7	Pallet gripper 2 – Forks left
Terminal 10	Sensor 8	Pallet gripper 2 – Forks right
Terminal 11	Solenoid valve 1	Pallet gripper – Forks up
Terminal 12	Solenoid valve 2	Pallet gripper – Forks down
Terminal 13	Solenoid valve 3	Pallet gripper – Forks left
Terminal 14	Solenoid valve 4	Pallet gripper – Forks right

Specifications connection boxes:

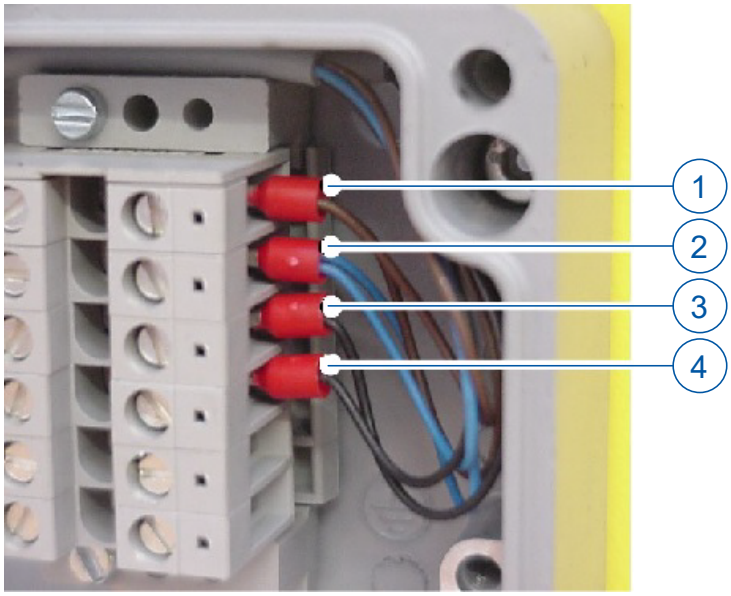
- 24 Vdc
- max. 500 mA
- max. 10 Watt

Electrical connection diagram:



BN = brown
BU = blue
BK = black
A = load

Terminal strip details



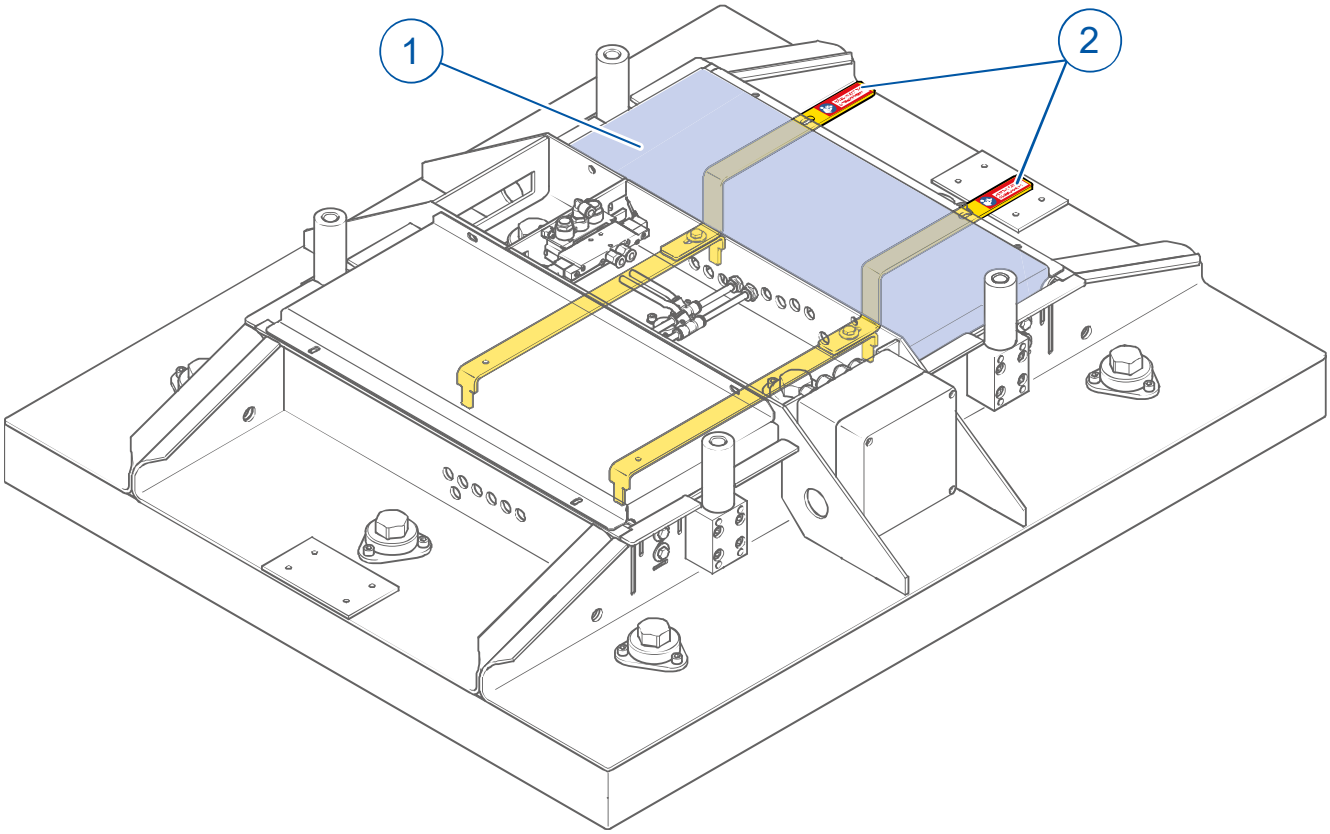
[1] brown (2x)
[2] blue (2x)
[3] black (1x)
[4] load (black (1x)

Sensor technical specifications

Operating voltage	12 – 30 V_{AC} / V_{DC}
Max. residual ripple voltage	± 10% Vb/Vb/Ub
Max. switching current	500 mA
Max. switching power	10 W
Switching time	< 0 ms
Max. switching frequency	800 Hz
Short-circuit resistant	No
Reverse-polarity resistant	No
Housing material	PC, PET
Cable material	PUR

7.5 Remove transport brackets

After installation, remove both transport brackets that prevent the magnetic plate from lowering to the lower position (magnetic plate active).



Proceed as follows:

- Remove the service hatch [**1**].
- Connect air pressure.
- Drive the magnetic plate upwards.
- Lift up the transport bracket [**2**] and remove it from the device.
- Do the same with the other transport bracket.
- Replace the service hatch.
- The device can be put into operation.

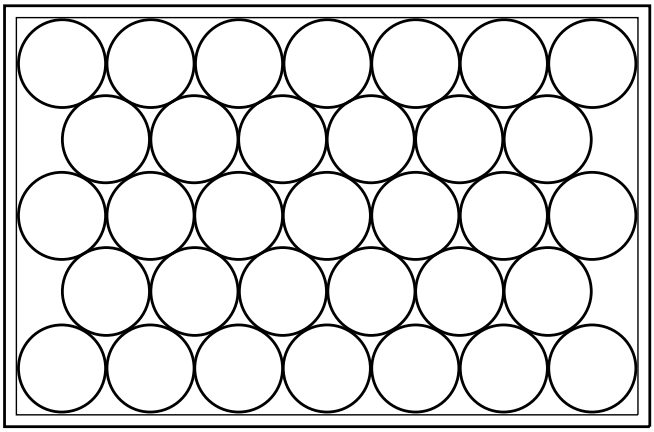
8 Palletizing instructions

8.1 Good magnet–product attachment

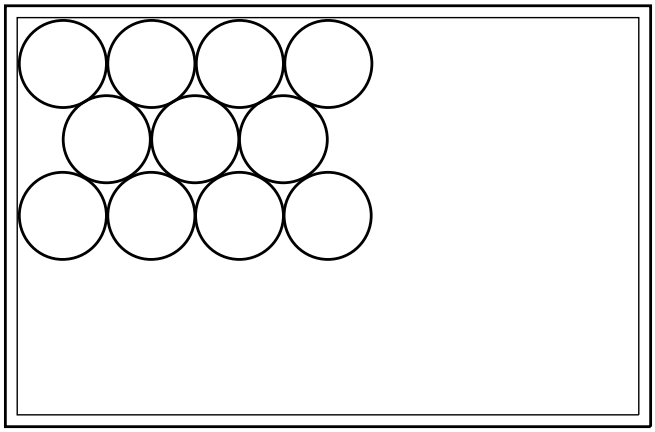
To ensure the products to be moved remain stably attached to the magnetic palletizer, follow these guidelines:

- Make sure the contact plate is clean and undamaged.
- The products must be presented and placed on a flat, horizontal loading and unloading surface respectively.
- There may be no more than one separator sheet (layer) between the contact plate of the magnetic palletizer and the product layer. The thickness of the layer must be known to Goudsmit Magnetics and may not be increased or changed without consultation with Goudsmit Magnetics.
- Products must be presented in accordance with the product pattern specified in the order. After all, the plate magnet is constructed to correspond to this pattern. If the magnetic palletizer is loaded based on a different product pattern, this may result in the products at the edge of the magnetic palletizer sliding or even falling off.
- If the product pattern is asymmetrical, care must be taken during installation to ensure that the magnetic palletizer is installed correctly. See figure below.

Examples of product patterns



Symmetrical product pattern



Asymmetric product pattern

8.2 Device acceleration

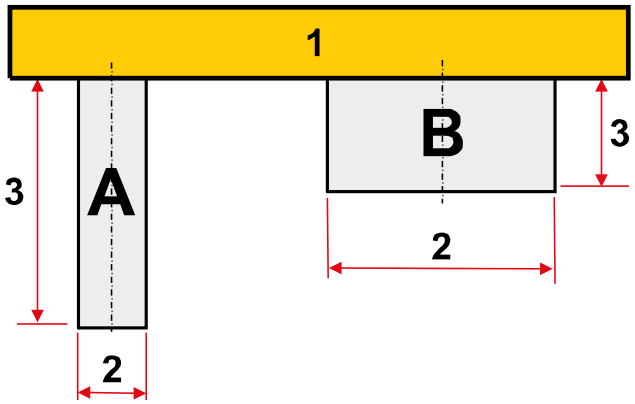
WARNING

Jerking movements must be avoided.

Acceleration is especially important during starting and stopping of the magnetic palletizer. Ensure that all movements of the magnetic palletizer proceed smoothly, without jolts or unwanted vibrations.

For a large-diameter, small-height product, greater acceleration of the magnetic palletizer is possible than for a small-diameter, large-height product.

Different product shapes



Product shape A Product shape B

1 = magnetic palletizer

2 = diameter

3 = height

Acceleration by product shape

Motion	Product shape A (full)	Product shape A (empty)	Product shape B (full)	Product shape B (empty)
Gradual acceleration 0.25 m/s²	+/-	+	++	++
Rapid acceleration 2 m/s²	--	-	+	++
Gradual displacement 1 m/s	+/-	+	++	++
Rapid displacement 6 m/s	--	-	+	++
Gradual deceleration -0.25 m/s²	+/-	+	++	++
Rapid deceleration -2 m/s²	--	-	+	++

++ = Very good working combination

\+ = Good working combination

+/- = Acceptable working combination

\- = Poor working combination (prone to faults)

-- = Bad working combination (not recommended)

8.3 Lifting sequence

1 Lower the magnetic palletizer **vertically** onto the products to be palletized/depalletized, with the plate magnet in the high position (OFF).

2 Switch the magnet ON by energizing the solenoid valve. The load is now held magnetically.

3 Move the device **vertically** upwards.
Take care not to move sideways, which could cause products to slide off the magnet.

4 Gently move the magnetic palletizer **horizontally** to exactly above the desired palletizing/depalletizing position.

5 Lower the magnetic palletizer **vertically** until the products are in the desired position.

6 Switch the magnet OFF by energizing the solenoid valve. The products detach from the magnetic palletizer.

7 Make sure the ‘empty’ magnetic palletizer is moved **vertically** upwards to avoid knocking the products over.

9 Operating principle

	Plate magnet	Pallet grippers	Vacuum units
'Off' position of plate magnet	Off / Retracted	Off / Retracted	Off
'On' position of plate magnet	On / Extended	Off / Retracted	Off
Lifting position of pallet grippers	Off / Retracted	On / Extended	Off
Layer / separator sheet non-ferromagnetic	Off / Retracted	Off / Retracted	On

- *'Off' position of plate magnet:*

Plate magnet is pushed up into the housing.
Used to reposition the device without carrying product.

- *'On' position of plate magnet:*

Plate magnet is pushed down against the contact plate.
Used for lifting ferromagnetic objects.

- *Lifting position of pallet grippers:*

Used for lifting a pallet.

- *Layer / separator sheet:*

Used for removing and inserting a layer or separator sheet.

9.1 Capacity

- The lifting capacity depends on the shape and magnetic properties of the product.
- Vacuum gripper lifting capacity: sheet(s)/packaging material. 1 sheet/layer at a time.

10 Commissioning

- **Before commissioning, check:**
  - that the transport brackets are removed
  - that the device/installation has no damage or defects
  - whether all connections (electrical, mechanical, pneumatic) have been made correctly
  - whether the device is properly installed and not subject to external vibration
  - whether all the safety guards are fitted (if applicable)
  - whether the entire installation, including the magnetic device, is earthed
  - for other potential risks/hazards.
- **During commissioning, check:**
  - that the device/installation has no damage or defects
  - whether all parts of the device/installation and the controller (if included), function as described in General safety instructions [▶ 6], supplemented by the data in the attached *specification sheet*

WARNING

Danger to unauthorized people

Unauthorized people who do not meet the requirements listed here are not familiar with the hazards associated with the work area.

▶ Keep unauthorized people away from the work area.

▶ When in doubt, address individuals and ban them from the work area.

▶ Stop operation as long as unauthorized people are in the operating range.

WARNING

Note!

Prevent the product from sliding off the contact plate.

▶ Make sure the device only moves horizontally when moving the product.

11 Maintenance and inspection

Magnetic systems attract dust and ferromagnetic particles. Regular cleaning is therefore necessary.

- The best way to clean all parts is with water and chlorine-free soap.
- 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.
- 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.

WARNING

Attraction by strong magnetic field

The magnets create a strong magnetic field that attracts ferromagnetic parts. Always use none ferromagnetic tools and work benches with a wooden counter top and a none ferro-magnetic base. Do not bring any other ferromagnetic items, such as keys, coins and tools, into the magnetic field as they can be forcefully attracted by the magnet, which can cause serious damage.

WARNING

Note!

Have fitting/removal of the contact plate carried out by qualified personnel or preferably by authorized personnel from Goudsmit Magnetics.

11.1 Contact plate

NOTICE

► Check the contact plate regularly for flatness and any damage.

► Regularly check the countersunk M5 screws on the bottom of the contact plate. These must never be loose.

11.2 Fitting/removing contact plate

To remove or replace the contact plate, proceed as follows:

- Make sure the magnet plate is hanging in the top position (magnet off).
- Move the magnetic palletizer over an empty pallet.
- Remove the countersunk M5 screws on the bottom of the contact plate.
- Lower the magnetic palletizer onto the pallet.
- Remove the M6 bolts from the contact plate.
- Raise the magnetic palletizer.
- Remove contaminants from the plate magnet.
- Lower the magnetic palletizer onto the new contact plate.
- Mount the contact plate with the M6 bolts.
- Fit the countersunk M5 screws at the bottom of the contact plate. Secure the bolts with Loctite Threadlocker.

11.3 Suction cups

Check suction cups annually for wear.

11.4 Pneumatic components

WARNING

Loss of air pressure / loss of air pressure in the cylinder

The plate magnet will slowly sink from the off (retracted) position to the on (extended) position.

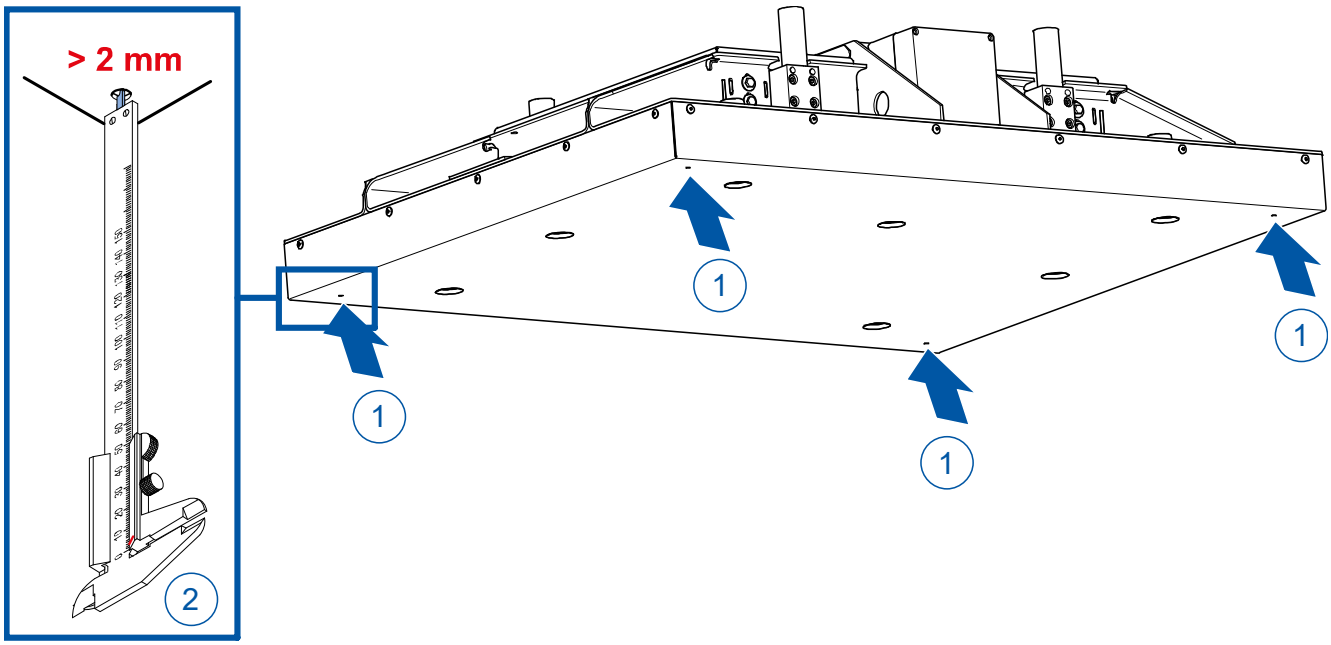
When air pressure is lost, the plate magnet will slowly sink to the contact plate, making the magnet active.

11.5 Measuring flux density

NOTICE

Goudsmit Magnetics offers an annual maintenance inspection and an inspection report with certificate for the magnets.

11.6 Tolerance of the plate magnet



Make sure the plate magnet is in the lowest position and check the tolerance.

There is an inspection hole in each corner of the contact plate [**1**]. This hole is used to measure (using a caliper) the tolerance between the magnet plate and the contact plate [**2**].

If the measured dimension is >2 mm, the plate magnet must be readjusted (Adjusting position of plate magnet [▶ 30]).

11.7 Inside of the device

To inspect the inside of the device, the service hatch must be removed. All important parts of the device can be inspected and repaired from here.

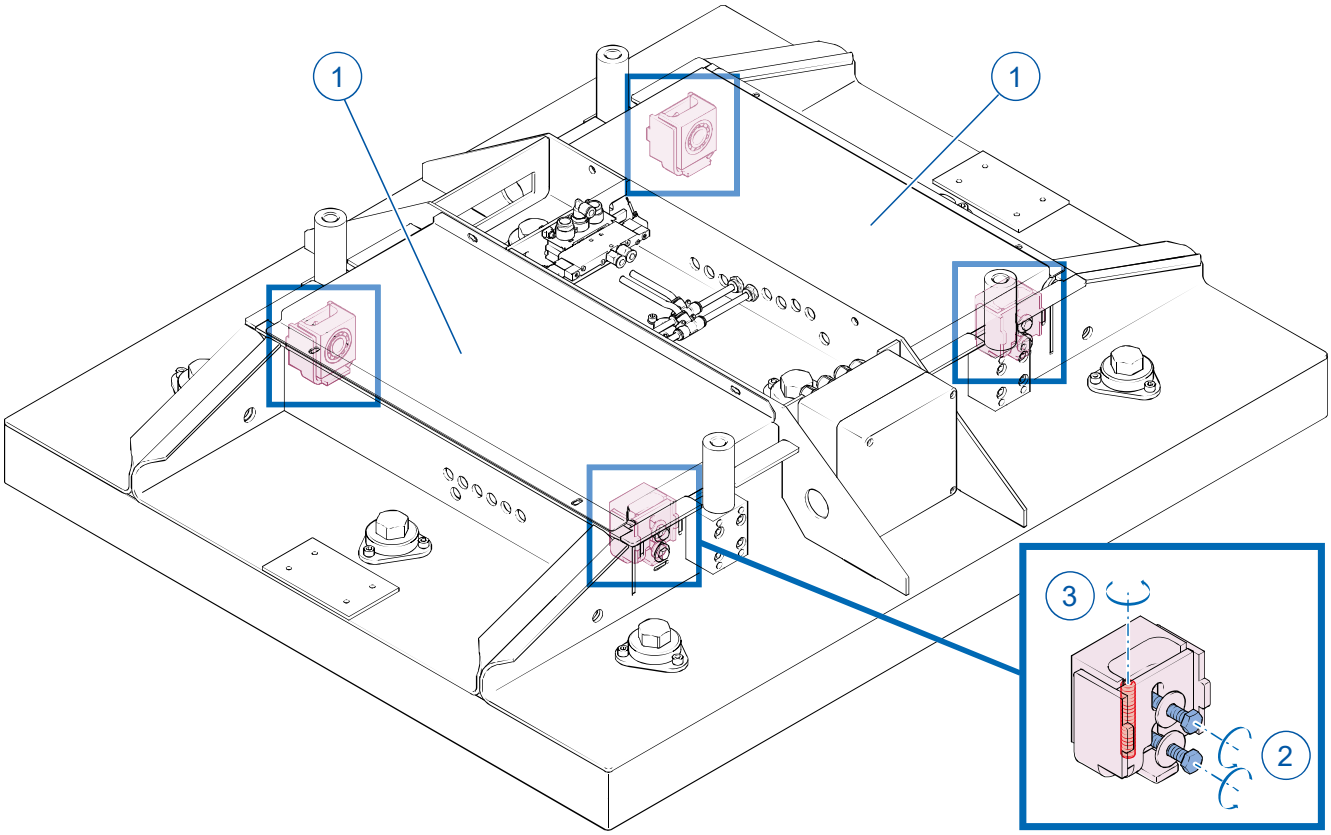
All parts in the magnetic palletizer are secured by means of locknuts or a locking compound (Loctite Threadlocker 243 or 270), except for the service hatches and transport protection.

Always reapply locking compound after replacing parts.

During inspection, assembly or disassembly, make sure no loose parts are left in the device. These can get caught between the plate magnet and contact plate over time, causing damage.

11.8 Adjusting position of plate magnet

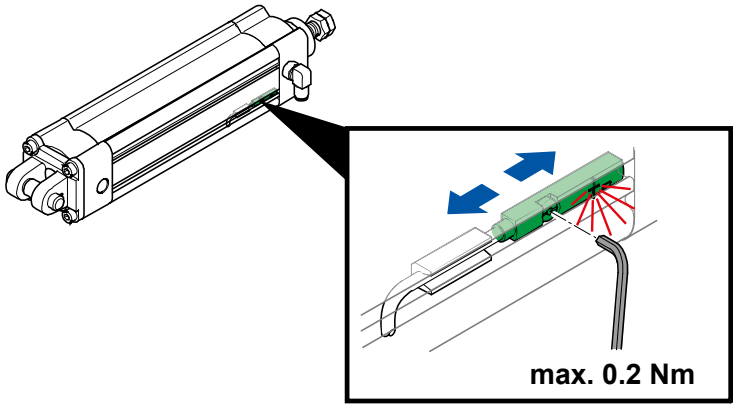
To adjust the position of the plate magnet, the corresponding bolts [**2**] on the side of the housing must be loosened a few turns.



Work sequence:

- Remove both service hatches [**1**].
- Loosen the two bolts [**2**] on each corner of the device a few turns.
- Activate the air pressure to the pneumatic cylinders.
- Switch the plate magnet ON. The plate magnet now presses on the contact plate.
- Measure with a caliper in each inspection hole to make sure the measured dimension in each hole is the same.
- Use the adjustment bolts [**3**] to set the plate magnet evenly and secure it.
- Re-tighten the two bolts [**2**].
- Re-fit the service hatches [**1**].

11.9 Adjusting sensors



The sensors can be readjusted with the supplied spanner.

- Move the air cylinder to the outermost position.
- Adjust the sensor to the point just before the LED goes out.
- Tighten the socket-head screw to a maximum torque of 0.2 Nm.
- Send the air cylinder into the other extreme position.
- Adjust the sensor position again to the point just before the LED goes out.
- Tighten the socket-head screw to a maximum torque of 0.2 Nm.

11.10 Cleaning instructions

NOTICE

Contaminants on the contact plate reduce the lifting capacity of the magnet, which can also pose a hazard.

Keep the device – and especially the contact plate – clean by regularly removing dust and other debris.

12 Troubleshooting

12.1 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
Cans or jars slide or fall off the device.	Device installed backwards (only in the case of asymmetric supply of products).	Install device correctly (Good magnet–product attachment [▶ 24]).
	Acceleration of the device is too high.	Reduce acceleration (Device acceleration [▶ 24]).
	Products are not presented as specified in the quote/order. The device is designed accordingly.	Present products correctly.
	Contact plate damaged.	Replace contact plate (Fitting/removing contact plate [▶ 28]).
No signal from sensor(s).	Sensor(s) not connected.	Connect sensors (Electrical connection [▶ 20]).
	Sensor(s) not properly adjusted.	Readjust sensors (Adjusting sensors [▶ 30]).
	Sensor(s) faulty.	Replace sensors.
Plate magnet does not move.	Compressed air not connected to the device.	Connect compressed air (Connecting compressed air [▶ 19]).
	Air hose detached within the installation (hissing sound).	Reattach hose
Magnet plate does not move all the way down.	A detached part has come between the magnet plate and contact plate.	Remove contact plate and remove detached component. Fit and re-secure the part via service hatch (Contact plate [▶ 28]).
Separator sheet/packaging material is not held by suction cups.	Vacuum grippers are stuck.	Check compressed air.
		Check air hose connections of compressed air system and vacuum grippers.
	Suction cups do not make good contact with the layer.	Readjust height of vacuum grippers.
	Suction cups are worn or damaged.	Replace suction cups.

13 Service, storage and disassembly

13.1 Customer service

Have the following information to hand when contacting customer service:

- Data from the identification plate.
- Type and scope of the problem.
- Presumed cause.

13.2 Spare parts

The high quality of the products from Goudsmit Magnetics means that the magnet product is highly reliable in operation.

However, if a particular part needs to be replaced, you can order a new one by providing the type number listed on the identification plate or on the attached drawing(s) and/or the data sheet.

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

- pneumatic cylinder(s)

- bearing blocks

- contact plate

- suction cups

See the data sheet for the precise specifications. Please get in touch with us for information on the availability of spare parts.

- 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.

13.3 Storage and disposal

Storage

If you do not intend to use the magnet product for an extended period of time, we recommend placing the device in a dry, safe place, and applying preservative to the vulnerable parts, if necessary.

Disposal/recycling

When dismantling and/or scrapping the magnet product, keep in mind the materials from which the individual parts are made (magnets, iron, aluminium, stainless steel, etc.). This should ideally be done by a specialized company. Always observe the local regulations and standards pertaining to industrial waste disposal.

Inform those disposing of the magnet material of the hazards of magnetism. To this end, see also the Safety risks [▶ 6] section.

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