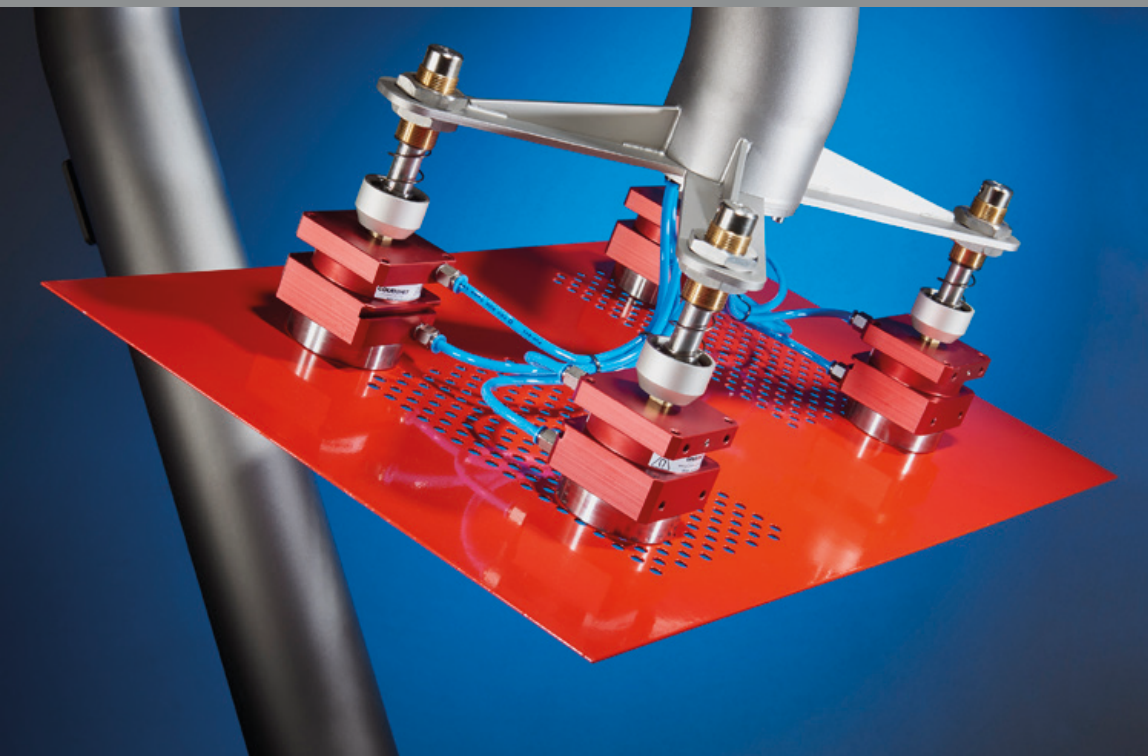


GOUDSMIT

MAGNETICS

Magnetic Handling





		Automation	Automotive	Mechanical engineering	Food, chemical & can handling	Sheet processing & grinding	On- & offshore industry	Stamping & cutting
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Switchable welding magnets	Pag 16			●			●	
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Magnetic grippers

Magnetic grippers have a wide range of use, for applications such as automated processes on laser cutting machines, robotic press brakes and press transfer systems in the automotive and plate-processing industries. The grippers are a proven technology with magnets that can be switched on and off by means of a short pulse.

Magnetic grippers for sheets thinner than 6 mm

Magnetic grippers are suitable for the automated pick-up, placement or positioning of ferromagnetic objects and perforated sheets with a limited weight. This makes them an efficient alternative to traditional robotic grippers.

There is no need for switchover.

The maximum working load is 1,170 N.

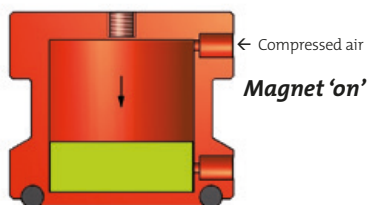
Operation

The gripper switches a magnetic field on and off. A switched magnetic gripper won't let go. Not even if the air pressure or electrical power is lost.

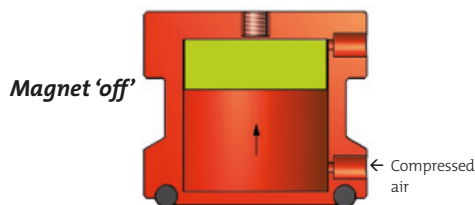
No backup system is needed.



MAGNET DOWN → GRIP



MAGNET UP → RELEASE



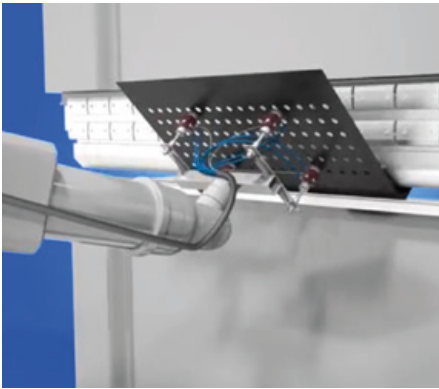
A compressor switches the air on: max. 4 bar



Magnetic grippers

Type number	Dim. (mm)	Magnetic force* (N)	Vacuum force (N)	Breakaway force (N)	Recommended lifting force (N)	Recommended plate thickness (mm)
TPGC020018	∅ 20 x 35	10	0	10	3,3	>0,5
TPGC024078	24 x 63	34	0	34	11	>1
TPGC040078	40 x 63	230	0	230	77	>1,5
TPGC070078	70 x 70	530	0	530	175	>2
TPGC100078	100 x 70	1,500	0	1,500	500	>3
TPGC160078	170 x 103	3,500	0	3,500	1,170	>3
TPMV040028	42 x 51	35	70	105	47	>2
TPMV100028	103 x 65	370	540	910	395	>2

* The specified lifting force is under ideal conditions. The maximum allowable lifting force depends on the risk assessment but should include at least a safety factor of 3.



Magnetic grippers with friction pad

Type number	Dim. (mm)	Magnetic force* (N)	Vacuum force (N)	Recommended lifting force (N)	Recommended plate thickness (mm)
TPGC024088	24 x 63	24	24	8	>1
TPGC040088	40 x 63	140	185	60	>1,5
TPGC070088	70 x 70	380	380	128	>2
TPGC100088	106 x 71	1,180	1,180	390	>3

* See table page 4



The friction pad prevents twisting of and damage to the work piece.



Accessories such as the spring plunger ensure that the gripper is always properly affixed.

The sensor allows on/off detection of magnetic grippers types TPGC...078 and TPGC...088.

Magnetic gripper for high temperatures

This gripper is suitable for applications such as handling high strength steel for loading and unloading a press. This is formed at high temperatures. The high temperature gripper is also suitable for stacking or destacking hot baking tins.

The gripper continues to function optimally even at constantly high ambient temperatures of 120°C and temporary product temperatures of 200°C. Moreover, it always remains in its last position – even after compressed air is lost. The low weight, small installation dimensions and high switching speed make the gripper perfect for use in existing gripper units or robot systems.



Magnetic grippers high temperatures

Type number	Dim. (mm)	Magnetic force* (N)	Breakaway force (N)	Recommended lifting force (N)	Recommended plate thickness (mm)
TPGC040378	40 x 63	185	185	60	>0,7
TPGC070378	70 x 70	420	420	140	>2
TPGC100378	100 x 70	1,200	1,200	400	>2

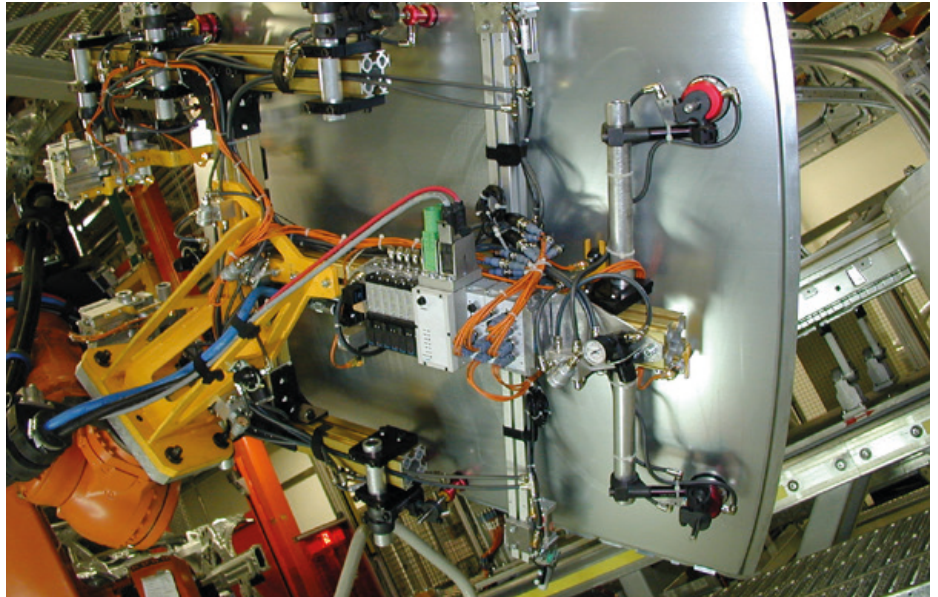
* See table page 4



MagVacu® Combigripper

The combination of vacuum and magnetic force enables this combigripper to handle both ferromagnetic and non-ferromagnetic sheet material. This includes punched or perforated steel parts, aluminium, stainless steel etc.

It can be used in automated processes on laser cutting machines and robotic press brakes and press transfer systems in the automotive and sheet metal fabrication industries.



Advantages MagVacu magnetic grippers

- Do not require a large vacuum system
- Strong, due to use of neodymium magnets
- Easy to use and has various mounting options
- Safe, due to use of permanent magnets
- No backup required for possible malfunctions
- Is controlled by a 5/2 or 5/3 pneumatic circuit (no electrical power required)
- Option: spring plunger
- Compact and lightweight
- Suitable for perforated products.

Magnetic Powergripper for products thicker than 6 mm

The magnetic Powergripper handles and holds heavy ferromagnetic parts such as rolled profiles, bar material and solid steel products in the form of grilles, plates and milled parts, brake discs and steel wheels. The Powergripper is suitable for applications in the automation, automotive, mechanical engineering, and plate handling and processing industries, as well as for punching and cutting operations in the metal industry.

The magnetic gripper effortlessly picks up products weighing over 100 kg. It is designed to be attached to a robot or XYZ manipulator.

The Powergripper, fitted with neodymium magnets, is pneumatically switchable yet permanently magnetic. This provides extra safety, because the magnet retains the heavy load even in the event of a loss of compressed air. No backup system is needed, which means low investment and maintenance costs and a simple control. To give an idea of the ratio of compactness to magnetic force: a 115 x 115 mm Powergripper weighs 9.5 kg



and lifts a load of around 175 kg with a holding force of approximately 500 kg. It does so safely.

Electromagnets

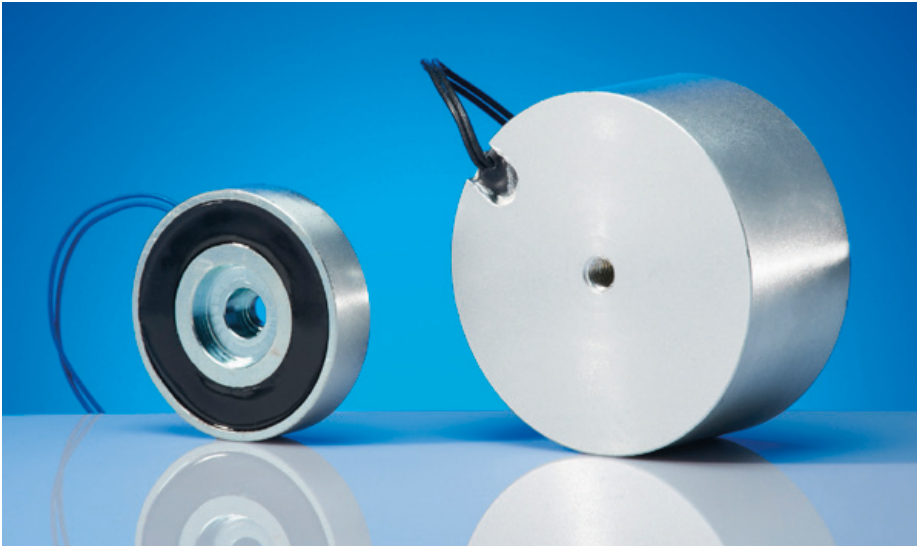
These magnets can be switched on and off with an electric control.

Electro bar magnets

Electro bar magnets are suitable for quickly and safely picking up, holding and releasing small ferromagnetic objects such as sheets, pipes and pieces of scrap. Common applications include use in warehouses, conveyor systems, equipment construction and for the loading and unloading of machines. Electro bar magnets are also suitable for robots and pick-and-place machines.

Circuit / power supply

A control box provides electrical switching and the power supply. Pick-up and release of the load can be controlled remotely, from a PLC-controlled environment for example.



Round electro holding magnets

The advantage of electro holding magnets is that they are electrically switchable. When the coil in the magnet is switched on, the magnet attracts the work piece; when it is switched off, it releases.

Electro holding magnets are used for positioning and picking up thin ferromagnetic products, up to a thickness of 10 mm. When picking up thin sheets, the magnetic field can extend too deeply and therefore lift two sheets at the same time. A number of small electromagnets collectively ensure that this does not happen. A threaded hole is provided in the centre of the back side for mounting.

Working principle

Both round and bar-shaped holding magnets attract a work piece after the coil in the magnet is switched on. When the coil is switched off, the magnet releases immediately.



Electro-permanent holding magnet

Electro-permanent holding magnets are permanently magnetic and work exactly the opposite way of electromagnets alone. Switching on the magnet neutralizes the magnetic force and temporarily switches off the magnet. These magnets are ideal if you want to be sure the work piece will be held reliably even if the electrical power is interrupted.

Circuit / power supply

A control box provides electrical switching and the power supply. It is easy to integrate in an existing control system.

Magnetic sheet separators

Magnetic sheet separators separate sticky or oiled steel sheets and prevent more than one from being picked up at the same time. This keeps the production process running much more smoothly. This also prevents damage to expensive production machines.

The permanent magnetic force does not degrade and is guaranteed for decades.

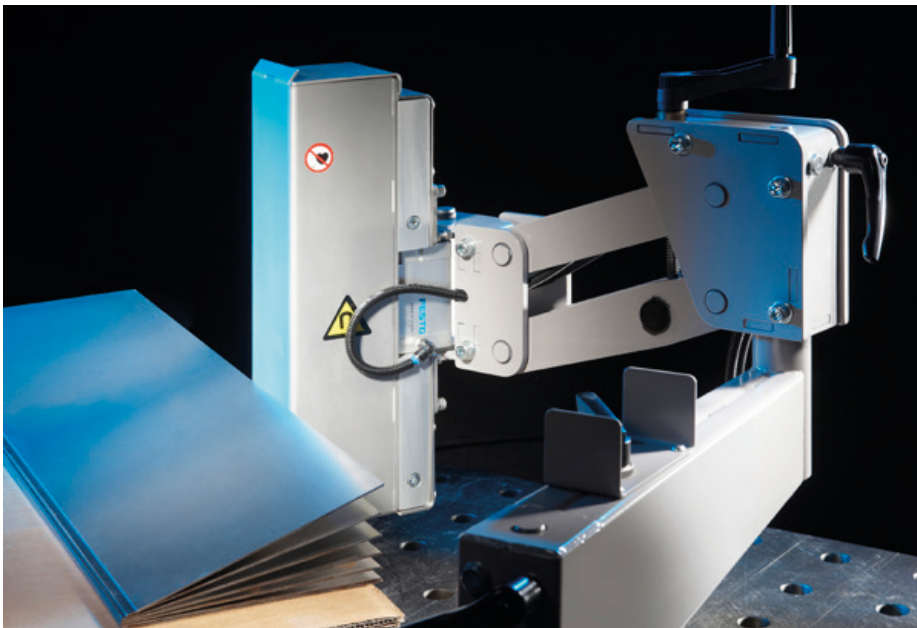
Continuous compressed air is no longer needed for blowing the steel sheets loose. The sheet separators are suitable for separating ferromagnetic sheets up to 4 mm thick, of nearly any shape, length or width, even round and asymmetrical shapes.

Goudsmit sheet separators are available in three types:

- A) Permanent, non-switchable, in ferrite or neodymium versions
- B) Switchable, pneumatically operated for automatic processes
- C) In special versions – e.g. when space is at a premium



Permanent, non-switchable sheet separators in permanent ferrite or neodymium versions; neodymium is 30% more powerful and suitable for sheets with a lot of oil in a tight space.



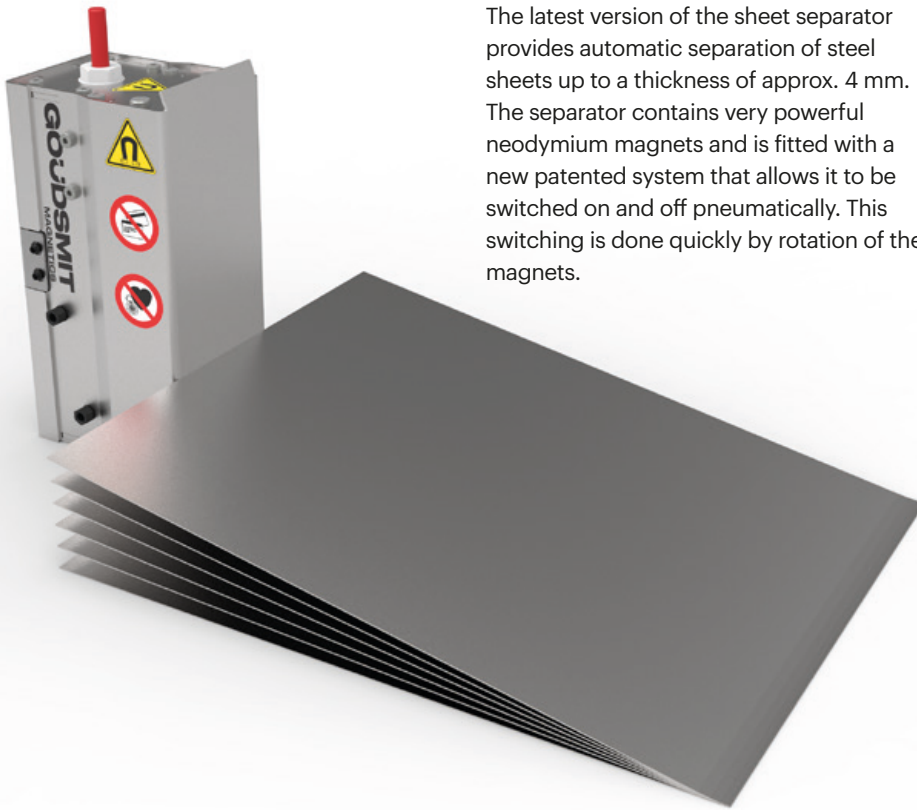
For correct positioning, Goudsmit has developed an adjustable swivel arm, with three hinge points, for the sheet separator. This moves the separator to any desired position.

Sheet separators

Type number	Magnet - system	Dim. w x d (mm)	Plate thickness (mm)	Dry plates (dm ²)	Sticky plates (dm ²)
TBSP00...	Ferrite 1,800 gauss	73 x 29	<1	23	15
TBSP02...	Ferrite 1,900 gauss	114 x 47	<2,5	32	21
TBSP03...	Ferrite 1,950 gauss	154 x 47	<4	40	26
TGSP00...	Neodymium 3,200 gauss	43 x 22	<1,4	21	14
TGSP01...	Neodymium 3,400 gauss	73 x 22	<2,4	30	20
TGSP02...	Neodymium 3,600 gauss	114 x 22	<4	38	25
TPSP...	Pneumatically switchable	120 x 75	<4	34	22
TRSP	Bar neodymium 3,400 gauss	Ø 33,6	<3	5	3

Fail-safe switchable sheet separators

The latest version of the sheet separator provides automatic separation of steel sheets up to a thickness of approx. 4 mm. The separator contains very powerful neodymium magnets and is fitted with a new patented system that allows it to be switched on and off pneumatically. This switching is done quickly by rotation of the magnets.



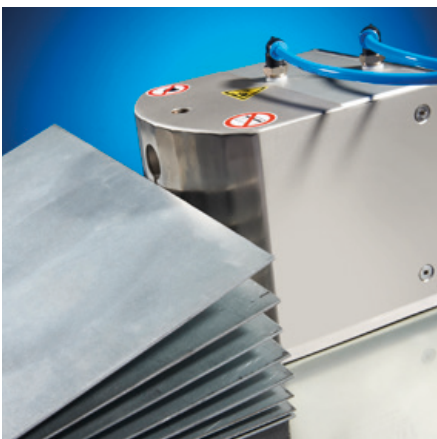
Maintenance-free

The maintenance-free sheet separator is the only one of its kind, with a spring-actuated off position. The extra-safe – hence the name ‘fail-safe’ – sheet separator automatically switches off even if the compressed air supply is interrupted. Even at full load at maximum stacking height. The magnet cannot accidentally remain switched on during maintenance either.

In contrast to fixed sheet separators, switchable sheet separators also allow interim changeover of products during a set process. It is possible to separate steel sheets of almost any shape, length or width. Even round and asymmetrical shapes.

For more information and installation examples, please visit our website: goudsmitmagnets.com

The on and off position is detectable by the ‘plug-and-play’ built-in sensors.



These switchable sheet separators have a neodymium magnet system and can be switched on and off pneumatically. Makes is easy to add to or swap a stack of steel sheets.



Special version of the sheet separator, made in the shape of a bar. The separator is very compact and easy to place in an opening in the sheet. Its round shape also makes it suitable for special contours.

Magnetic conveyors

Goudsmit magnetic conveyors are perfectly suited for use in the metal and sheet metal processing industry. They provide trouble-free transport sharp steel parts such as: punching waste, pressing scrap, trim waste, ball bearings, nails, turning, milling and drilling swarf and other steel parts.

Slide conveyors

Slide conveyors have no external moving parts. This makes them maintenance-free and suitable for – heavily – polluted environments, as well as for use in an oil bath.

Working principle

The chain-mounted magnet systems are located under a stationary stainless steel slide plate. A geared motor drives the chain and sets the magnets in motion. The magnets move the steel parts along the slide plate and carry them to the discharge end.



Slide conveyor mounted under a stamping machine to carry off the scrap metal.

Options

The conveyor has a variable transport speed and is available with:

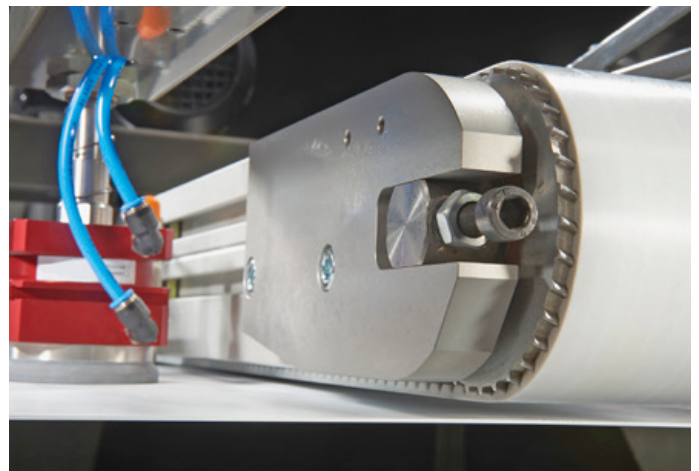
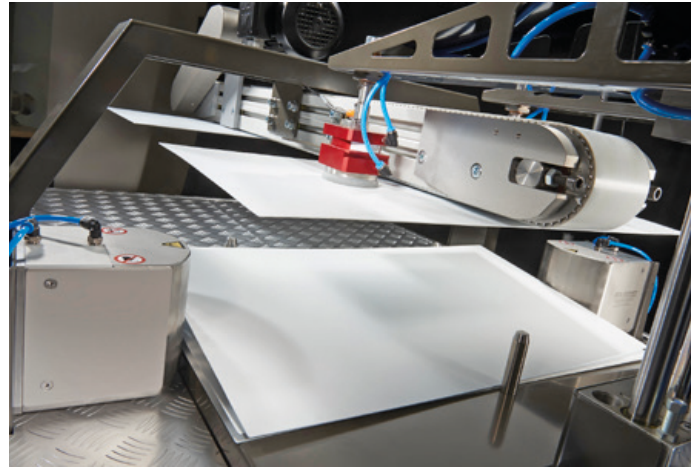
- a hopper on the receiving section
- a demagnetization function
- a support frame
- wheels
- a manganese steel slide plate for abrasive materials.

Characteristics

- Capacity: 9 – 42 kg/minute
- Built with strong neodymium magnets
- Standard transport angles: 0°, 45°, 60°, 75°
- Standard widths: 225 to 575 mm
- Available as standard in Z-shape or horizontal
- Other angles up to 90°, widths or shapes available on request, as well as version for oil bath
- Maximum conveying length: 15 metres.

Timing belt magnetic conveyors

Timing belts feed hanging or lying steel sheets to the press quickly and precisely. They are fitted with permanent magnets and/or electromagnets. For automated systems we use permanent magnets. In combination with a robot Goudsmit uses electromagnets that are switched off the moment the steel plates are picked up by a robot arm. For specification, please see the website: goudsmitmagnets.com



Magnetic feed conveyors

Magnetic feed conveyors provide controllable, steeply upward sloping transport of ferromagnetic metal parts, such as nails, screws, bolts or other steel parts, in the packing industry. These belts are available in combination with an aligner, for compact packing.

Characteristics

- Steep transport angle of 60°
- Maximum belt width: 750 mm
- Maximum elevation height: 5 metres
- Capacity from 75 kg/min.



Aligners

Aligners bring ferromagnetic parts into the desired position. Perfect for nails, bolts and long ferromagnetic parts in packaging lines. Aligners are the perfect solution when compact packing with a high fill factor is a must.

For use in automated packaging lines. Suitable for packaging with a fill weight of up to 35 kg. Switching: fully automatic with electric control. For metered infeed we suggest combining an aligner with a magnetic feed conveyor (see photo at left).

Magnetic palletizers

Magnetic palletizers pick up empty or filled tins, aerosol cans, drums and glass jars with steel lids. Application: automated processing for packing and unpacking using a robot arm or gantry crane.

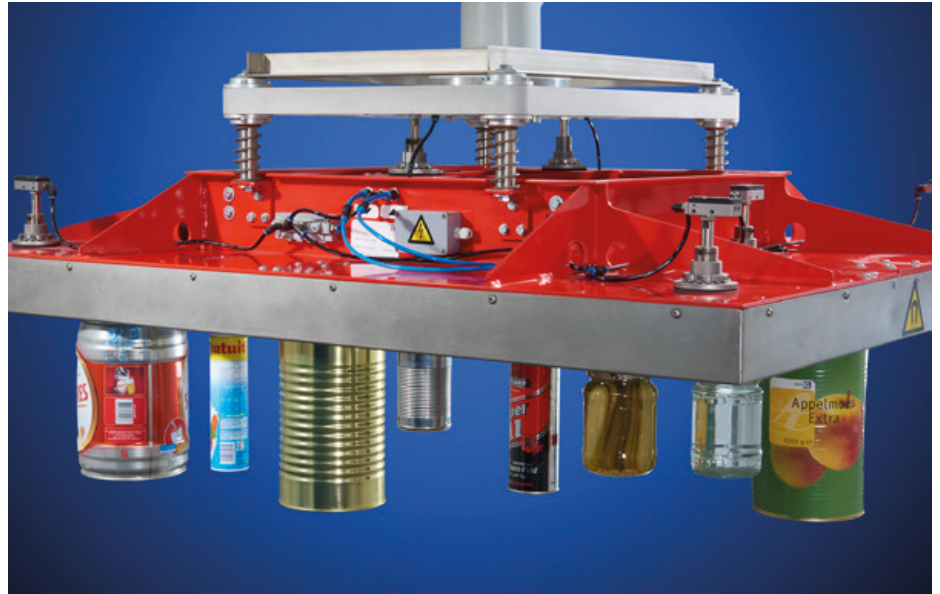
Magnetic palletizers are intended for integrators, packaging companies and producers of food or chemicals, among others.

Working principle

The magnetic palletizer built with neodymium or ferrite magnets lifts the products all at once and holds them with permanent magnets. Without power supply. The pneumatically switchable parallel mechanism guarantees a low-maintenance, trouble-free production process. Even with uneven loads, such as picking up half a layer of products. This design has a long service life, requires minimal maintenance and consumes little compressed air.

Modular construction

Various versions of the modularly constructed magnet are available. For example, a lightweight version for robots and one with a spring suspension unit.



This unit prevents product damage and allows correct positioning. The vacuum system and pallet gripper options make it possible for a single robot to pick or place a pallet, separator sheet or layer of tins.

This saves a robot, so the system pays for itself quickly.

For more information and features: check goudsmitmagnets.com

Magnetic palletizers with steel housing

These magnets are suitable for palletizing and depalletizing with a gantry crane. They are constructed with ferrite or neodymium magnets and available in various designs. Optionally also available with stainless steel housing.



Lightweight magnetic palletizer with aluminium housing

Lightweight palletizing magnets are constructed with ferrite or neodymium magnets and are suitable for palletizing and depalletizing with a robot arm.

We can fit this magnet with the following options.

- An integrated vacuum system, without moving parts, for handling separator sheets. In other words, the robot picks up and processes both metals and separator sheets in one cycle. This eliminates the need for a second robot.
- External pallet gripper for packing or setting aside empty pallets.



Magnetic components for tin transport

Goudsmit sells various separate components with which you can construct a magnetic conveyor system yourself.

These magnetic components, in the form of rails, rollers, curves or bends, transport ferromagnetic shells, empty or full tins, lids, crown caps and aerosol cans. The appropriate type of magnet depends on the shape of the transported object, belt type, belt speed of the conveyor system and the environmental conditions in which the conveyor will operate.

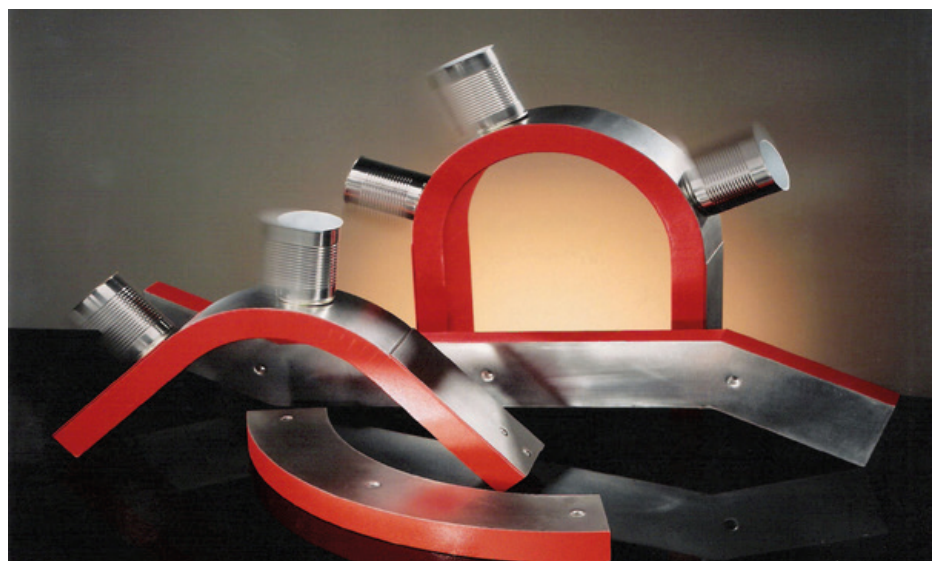
There are important factors for choosing the right component.

These can be found on our website:

goudsmitmagnets.com

Magnetic rails

Magnetic rails are suitable for straight or curved product flows or flows with side infeed or discharge. They have your choice of a constant, decreasing or increasing magnetic force and a steel back side or



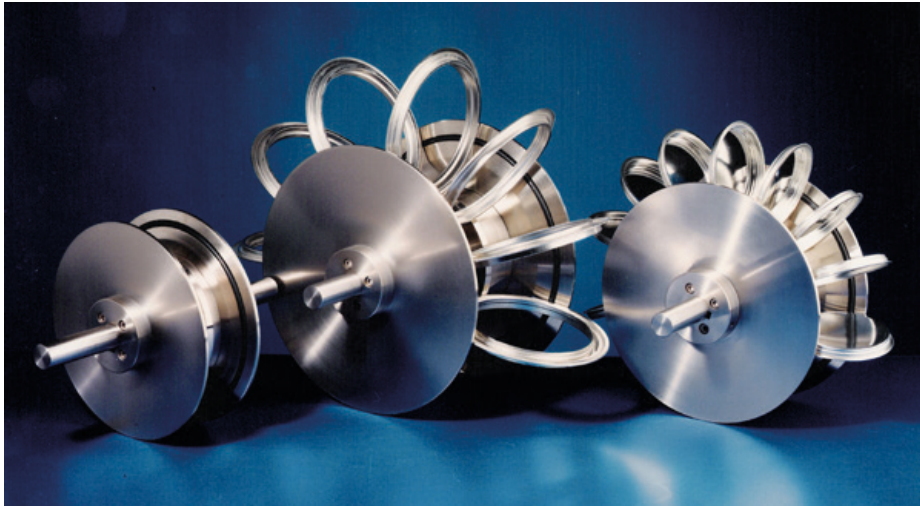
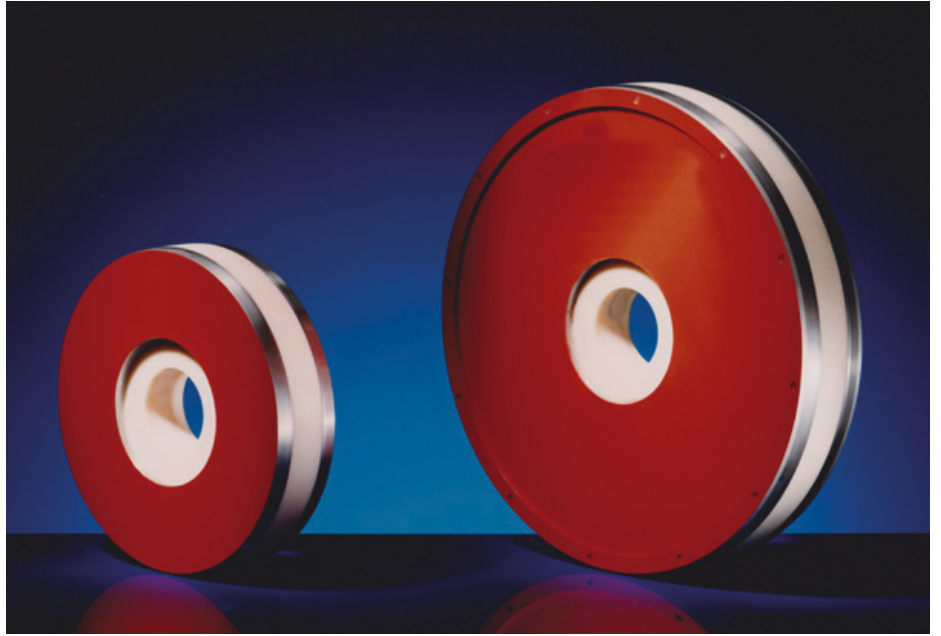
stainless steel housing with cast-in-place ferrite or neodymium magnets.

Suitable for connection to a magnetic conveyor roller, curve or bend or to another magnetic rail.

Magnetic conveyor rollers

Magnetic conveyor rollers provide straight product flows with constant magnetic force at a variable angle with tight radius. Installation between other – tapered – magnetic rails.

The rollers have a steel housing, a radius of 220 or 400 mm and are constructed with ferrite or neodymium magnets.



Magnetic lid stack roller

For stacking and unstacking lids, rings and discs. For example, when feeding to filling or sealing machines in the canning industry. Or for stacking rings in a production line. Suitable for lids from 52 to 180 mm in diameter, mountable on a 25 mm shaft and constructed with ferrite magnets.

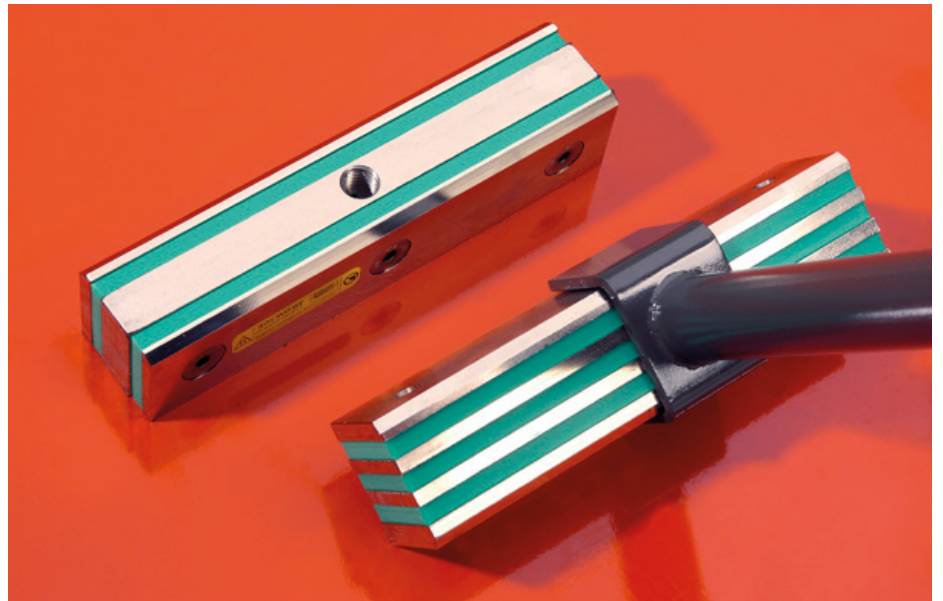
Laminated-core block and plate magnets

These components are used in surface grinders. They transport and hold steel products lying on a conveyor belt. These products undergo grinding or other surface finishing.



Shuttering magnets, or permanent holding magnets, are suitable for securing steel panels and forms.

They are also very suitable for installation in U-shaped transverse and longitudinal formwork, which is used for the production of precast concrete structures or for securing cable ducts in the wind turbine industry.



Hoisting and lifting magnets

Lifting magnets move and position steel work pieces of different shapes and lengths. They do this quickly and without damage.

A lifting magnet saves valuable storage space and time. They are often a safe alternative to slings, chains or clamps.

When choosing the right lifting magnet, it is not just the weight of the load but also the type of load that is important. And what certainly also counts is the safety of the working environment. A risk analysis in advance, based on the presence of persons, retention devices and swaying of the load, is essential. A good lifting system is a combination of the magnet, suspension and control system. For more information: goudsmitmagnets.com



Manually-switched permanent magnetic lifters

For lifting flat or round ferromagnetic objects from 10 mm thick. For lifting steel loads, machine parts or work pieces at locations without power.



Switchable welding & holding magnets

Welding or holding magnets can be used to temporarily secure ferromagnetic objects. This is a handy solution for welding, grinding or polishing. Despite the powerful magnetic field, no residual magnetism remains after release.

Advantages

- Manually switchable magnetic field
- Magnet produces magnetic field on 3 sides
- Compact
- Wide range of potential applications
- Maximum holding power: 4,500 N.



Demagnetizing is required for objects made of magnetically conductive metals that are involved in machining operations, such as steel products and machine tools. Depending on the type of metal or alloy, the machining process may cause the object to become magnetized. This can cause problems during further processing.



Goudsmit demagnetization systems remove undesired magnetism during or after machining processes. In addition to the various systems, on-site demagnetization is also provided as a service.

Stainless steel can also become slightly magnetically conductive, after welding, grinding, bending or machining for example.

Undesirable magnetism can cause many problems:

- products sticking together in a die
- a rough surface after galvanization
- difficulty performing arc welding
- welds that only penetrate on one side
- increased bearing wear
- metal chips sticking to parts or tools
- measurement errors by actuators and magnetic sensors
- adherence of extra dirt and dust.

Demagnetizing tunnels with rectangular passage

Intended for long, thin-walled products and materials with an irregular surface. For products with a wall thickness of up to 10 mm or solid products up to 20 mm thick, such as:

- drill bits and other machine tools
- pipes
- sprockets and gears
- bolts, nuts and other fasteners
- steel components in the automotive industry.



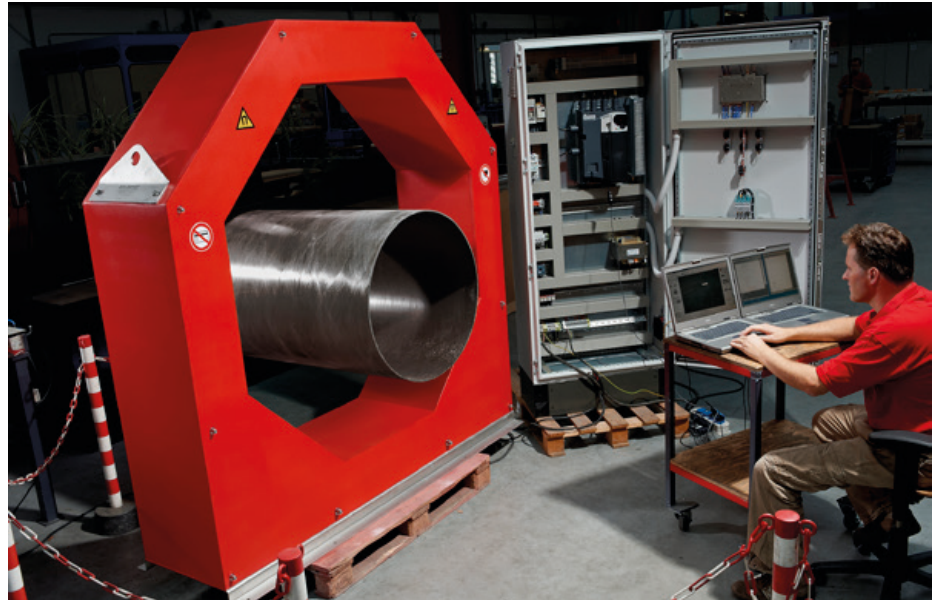
Free-fall tunnels, for the demagnetization of cutlery for example.

Low-frequency demagnetizing tunnels

Suitable for thick-walled or solid objects up to 500 mm.

For example:

- rails and shafts
- hardened steel products, such as dies and moulds
- products packed more than one to a box
- thick-walled pipes up to 56" (1,422 mm)
- cemented carbide tools.



Demagnetizing tunnels with round passage

Intended for long, thin-walled products and materials with an irregular surface.

For products with a wall thickness of up to 10 mm or solid products up to 20 mm thick, such as:

- drill bits and other machine tools
- pipes
- sprockets and gears
- bolts, nuts and other fasteners
- steel components in the automotive industry.

The gaussmeter can be used to determine how much residual magnetism is present in your product.

Demagnetization bars

For the demagnetization of tools and machine parts in difficult-to-reach places.

For example, in:

- workshops
- toolmaking shops
- machine building and for watch repairs.



Plate demagnetizers

For the demagnetization of flat or single-sided magnetic products up to 10 mm thick. Intended for places where there is too little space to build-in a tunnel, or for installation under an existing conveyor belt. Available on request with belt or roller conveyor for automated processes.

Specially for:

- grinding shops (wet grinding)
- galvanizing companies
- machine construction
- packaging machines.



Demagnetization on location

Goudsmit can perform demagnetization of complete or very large products, at our location or yours. Even if you only require occasional demagnetization this option can save you space and money. We are happy to provide you with an offer based on the dimensions, type of material and quantity.

Examples:

- demagnetization of pipelines (incl. oil pipelines)
- demagnetizing of large shafts, railway rails or constructions
- the creation of a counterfield for built-in constructions so that welding can be performed.



The mobile demagnetization system, specially developed for on-site use, goes one step further: the system is completely made for your own use.

Without the supervision of a Goudsmit specialist. The demagnetization system is automatically configured for use by simply answering a number of questions on the display.





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