ALFRA®

www.alfra.de

PUNCHING | DRILLING | LIFTING | CUTTING | DEBURRING

C/2016 EN

MADE IN GERMANY

The Story Behind the Cover

Two years ago we presented the world with a new and unique magnetic system, ‚TML', for the first time ever in the Cologne Hardware Fair „Eisenwarenmesse".
The name ‚TML' stands for the ability to generate an enormous holding force even on extremely thin-walled magnetic material. In spite of this excellent lifting capacity, its use of material is incredibly low, i.e. it minimizes dead weight: „Thin Material Lifting". Lifting magnets that are based upon this innovative system can be used with a material thickness as low as 2 mm.

The years from 2014 until today represent a story of success for us and all the users throughout the world who have already started to use the new TML system and have benefited from its countless advantages. This has led to the creation of an independent programme for 'Lifting–Positioning–Resolving problems', the diversity of which you can discover in this Catalogue Part C. ALFRA is the worldwide license holder for the new, patented magnetic system.

In a short period of time, a number of products have been added to the TML Lifting Magnets line and are already facilitating the daily work of metal processing companies all over the globe. In particular, the Magnetic Clamps from our TMC series (Thin Material Clamping) are increasingly gaining in popularity among operators from a wide variety of industries. Additional products are being developed.
At the same time, this new technology has also found its way into the more traditional machines that can be found within our range of products. Therefore you will also find TML magnets with permanent magnet technology used in our Metal Core Drilling Machines in Part B of our catalogue.

Nowadays, demands such as energy consciousness, risk reduction, and security optimisation are not only buzzwords but also virtues and essential requirements that we try to implement in our day-to-day work.
The ALFRA Magnetic System supports you in better fulfilling these requirements.

We would also like to mention that we have manufactured tools ‚Made in Germany' for more than 100 years. In our product line we seek to unite tradition with innovation.

We hope you will be pleased when using our products and we wish you a perfect working day!

Over the last 4 years we have reduced our CO_2 emissions by almost 400 tonnes!
We have produced 600 megawatt-hours of power for our own use!

Only if you manufacture in-house, can you control and shape the entire manufacturing process.

We have consistenly implemented a resource-saving approach to our environment into daily practice in recent years and developed a heightened awareness of "what comes from where" and how to effectively make use of these valuable resources.
With the use of alternative energy, i.e. photovoltaics, we have achieved almost climate-neutral production process in recent years.

And lest we forget: we are, of course, certified according to ISO Standards since 1997!
This means that you can feel good about our tools – not just because they are so technically advanced and are so durable.

But also because the entire production cycle has been carefully designed to ensure that our tools won't leave any traces which could pollute the environment or leave problems for the generations that will follow us.

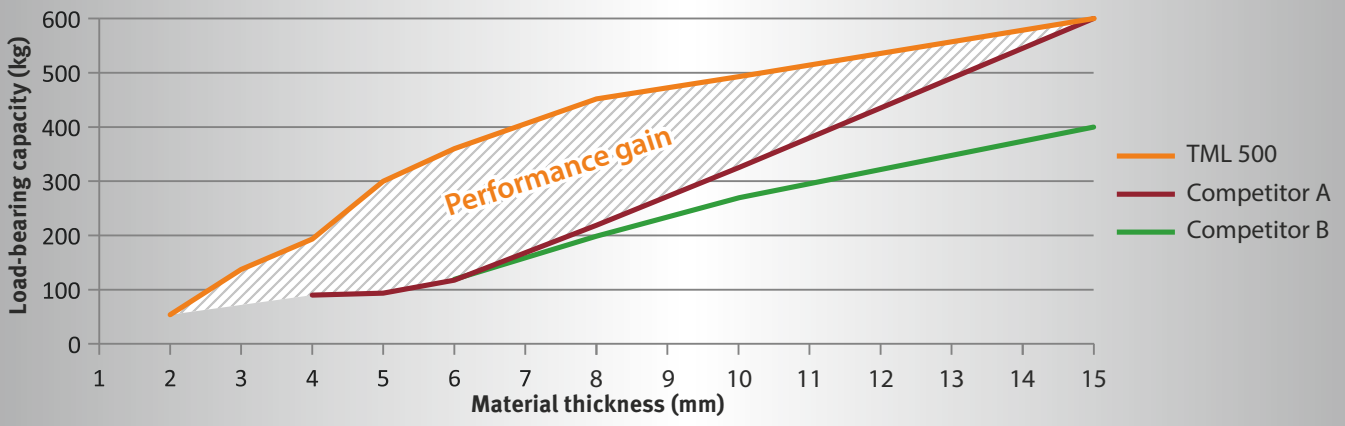
MADE IN GERMANY

GREEN ENERGY

TÜVRheinland® CERT ISO 9001

In which way do ALFRA TML Magnets stand out from conventional magnets?

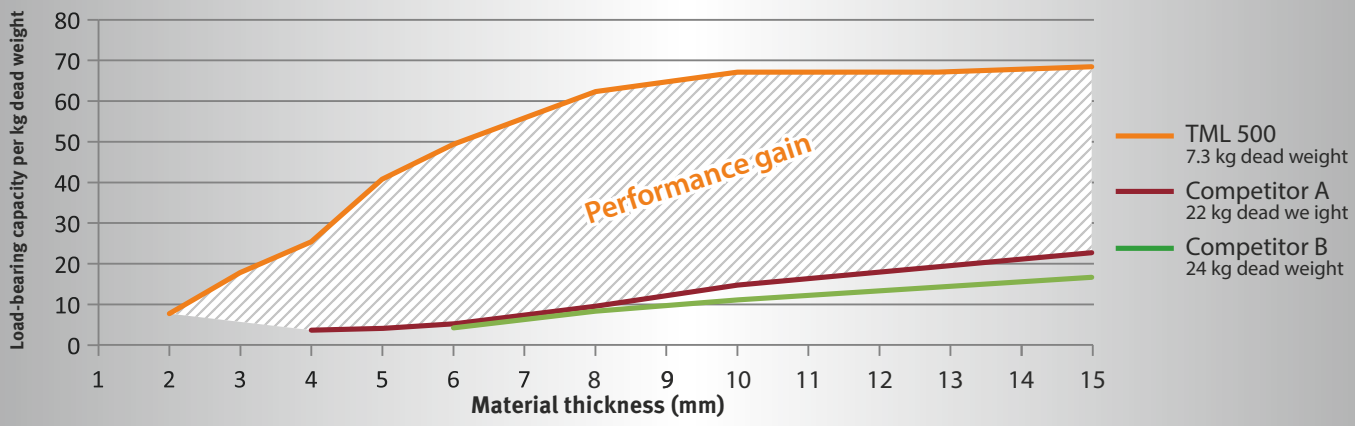
Graph A – The TML provides more performance!



A comparison of the performance data of the TML 500 and two conventional magnets reveals how powerful the TML 500 is, especially when used on thin materials.

The hatched area shows the ‚performance gain' of the TML and illustrates how big the performance difference is between TML and conventional magnets. The measurements were taken on thin-walled steel S235 by means of a pull-off station certified by the TÜV (German Technical Inspection Association).
The result: Whereas competitors A and B are not able to generate a sufficient magnetic field on thin materials, the TML achieves a load-bearing capacity of 50 kg on just 2 mm and 195 kg on 4 mm material thickness–this is unique to ALFRA.

Graph B – Less weight but more performance!



When taking the ratio of the magnets' load capacity in graph A and their dead weight into account, the hatched ‚performance gain' shows the efficiency of TML magnets in contrast to their competitors.
Conventional lifting magnets exhibit lower performance due to their extremely high dead weight and their relatively low adhesive force. The TML, however, weighs just a fraction of the weight of competitors A and B while achieving a considerably higher load-bearing capacity.

TML Lifting Magnets–the ideal tools to lift thin materials with thicknesses as low as 2 mm!

Further Benefits of the ALFRA Magnetic System

Hardened steel bottom plate with TiN-coating eliminating the need to regrind the magnet's bottom plate: reduced maintenance

Slight premagnetisation for the easy positioning of the magnet

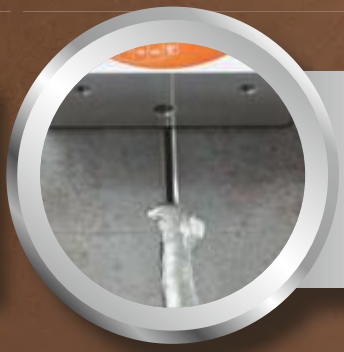
One-handed activation possible

Magnets can be customized thanks to additional connection threads inside the housing

New design allowing for the use of the magnet even between the flanges of a steel beam

The magnetic field concentrates directly on the material and reduces scattering losses to a minimum

180° pivotable and 360°rotatable load swivel



Magnets allow welding at a distance of just 15 mm from the magnet's external side

TML

US Patent No. 8350663B1

ALFRA is the worldwide license holder for the new, patented magnetic system that allows you to drill, lift, position, transport...from a material thickness of just 2 mm!

MAGNETIC SYSTEMS PATENTED US Patent No. 8350663B1

ALFRA sets new standards in magnet technology!

Our Permanent Magnets are activated according to a patented principle, completely independent of the mains supply–providing 100 % safety and permanent stability!

LIFTING

CORE DRILLING

POSITIONING

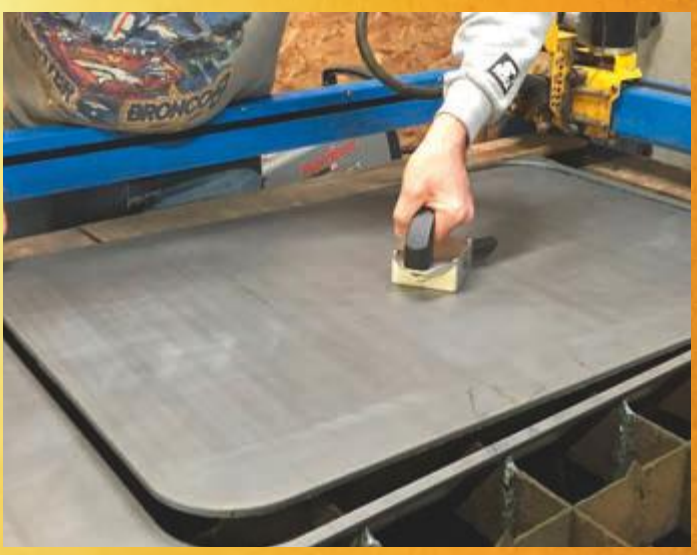
RESOLVING PROBLEMS

MADE IN GERMANY

“Looking for solutions to meet your needs or those of your customer? You will find them in our wide range of magnets. Our sales agents will be glad to help you!“

SHIPBUILDING–TURKU/FINLAND – ALEKSI

LIFTING–RECIFE/BRAZIL – PEDRO



PLASMA CUTTING–MANCHESTER/UK – STEVE

CONTAINER CONSTRUCTION–WROCŁAW/POLAND – MAREK

METAL CONSTRUCTION–NUREMBERG/GERMANY – OLIVER

CUSTOM CONSTRUCTION– PRAGUE/CZECH REPUBLIC – PETR

HALL CONSTRUCTION– BLOOMFIELD/USA – RICARDO

MOULD CONSTRUCTION– SYDNEY/AUSTRALIA – ANDY

FRAME BUILDING– LINKÖPING/SWEDEN – ULF


MAGNETIC
SYSTEMS
PATENTED
US Patent No.
8350663B1
TML250

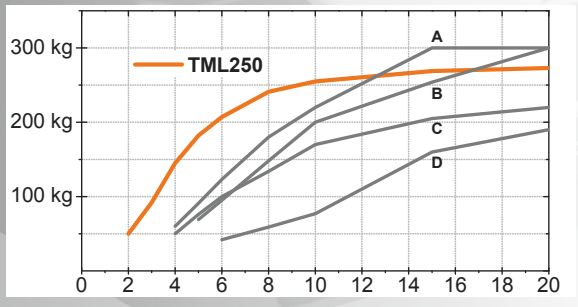
Lifting Magnet TML 250

1. Only 3.5 kg dead weight
2. Max. load-bearing capacity: 250 kg (with 3:1 safety factor)
3. 360° rotatable and 180° pivotable load swivel
4. One-handed operation ('inside' steel beam possible)

US Patent No. 8350663B1

- Up to 250 kg load-bearing capacity from a material thickness of 10 mm and 90 kg from just 3 mm material thickness on steel S235 plus 3:1 safety factor (i.e. the force that leads to the breakaway of the metal sheet must represent triple the maximum holding force)
- Outstanding performance on thin-walled materials
- Up to 70 % less dead weight with at least the same performance in contrast to conventional magnets
- Easy activation with minimal effort due to the ergonomic activation lever
- Innovative operational concept allowing for an enlarged operating range
- 360° rotatable and 180° pivotable load swivel
- Wear-resistant magnetic contact area made of hardened steel with TiN-coating preventing damages and guaranteeing a long lifetime

Technical data TML 250:
- Dead weight: 3.5 kg
- Breakaway force: 750 kg
- Max. load-bearing capacity: 250 kg (with 3:1 safety factor)
- Length: 240 mm (closed lever), width: 91 mm, height: 191 mm (opened lever)
- Magnetic contact area: length: 135 mm, width: 65 mm



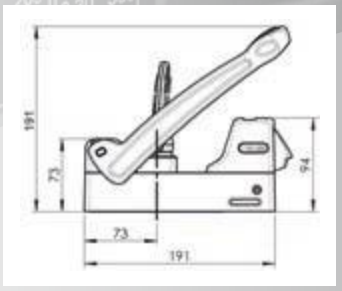
Competitors:

A: 300 kg Permanent magnet; 9 kg Dead weight

B: 300 kg Permanent magnet; 11 kg Dead weight

C: 250 kg Permanent magnet; 10 kg Dead weight

D: 250 kg Permanent magnet; 10 kg Dead weight



	Prod.-No.
ALFRA TML 250	41250


MAGNETIC
SYSTEMS
PATENTED
US Patent No.
8350663B1

Lifting Magnet TML 500

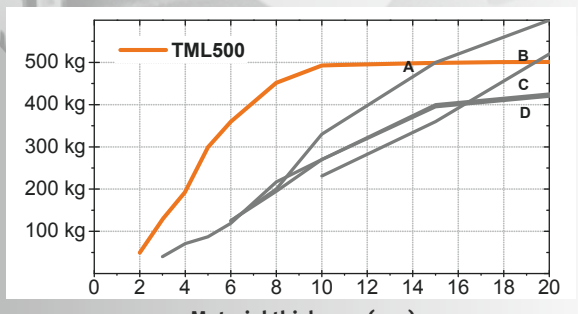
1. Only 7.3 kg dead weight
2. Max. load-bearing capacity: 500 kg (with 3:1 safety factor)
3. 360° rotatable and 180° pivotable load swivel
4. One-handed operation ('inside' steel beam possible)

US Patent No. 8350663B1

- Up to 490 kg load-bearing capacity from a material thickness of 10 mm and 300 kg from just 5 mm material thickness on steel S235 plus 3:1 safety factor (i.e. the force which leads to the breakaway of the metal sheet must represent triple the maximum holding force)
- Outstanding performance on thin-walled materials (useable from as low as 2 mm)
- Up to 70 % less dead weight with at least the same performance in contrast to conventional magnets
- Easy activation with minimal effort due to the ergonomic activation lever
- Innovative operational concept allowing for an enlarged operating range
- 360° rotatable and 180° pivotable load swivel
- Wear-resistant magnetic contact area made of hardened steel with TiN-coating preventing damages and guaranteeing a long lifetime

Technical data TML 500:

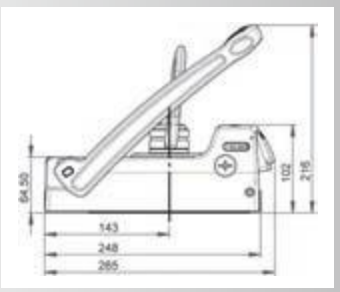
- Dead weight: 7.3 kg
- Breakaway force: 1500 kg
- Max. load-bearing capacity: 500 kg (with 3:1 safety factor)
- Max. load-bearing capacity during vertical lifts (90° inclination of the load): 150 kg (from 15 mm on S235 with 3:1 safety factor)
- Length: 295 mm (closed lever), width: 118 mm, height: 216 mm (opened lever)
- Magnetic contact area: length: 185 mm, width: 88 mm



Material thickness (mm)

Competitors:

A: 600 kg Permanent magnet; 22 kg Dead weight
B: 600 kg Permanent magnet; 24 kg Dead weight
C: 500 kg Permanent magnet; 20 kg Dead weight
D: 500 kg Permanent magnet; 8 kg Dead weight



	Prod.-No.
ALFRA TML 500	41500

Lifting Magnet TML 250 F

1. Only 3.5 kg dead weight
2. Max. load-bearing capacity: 250 kg (with 3:1 safety factor)
3. One-handed operation ('inside' steel beam possible)
4. Ideal for use in spreader bars due to its rigid eye bolt

US Patent No. 8350663B1

- Up to 250 kg load-bearing capacity from a material thickness of 10 mm and 90 kg from just 3 mm material thickness on steel S235 plus 3:1 safety factor (i.e. the force which leads to the breakaway of the metal sheet must represent triple the maximum holding force)
- Outstanding performance on thin-walled materials
- Up to 70 % less dead weight with at least the same performance in contrast to conventional magnets
- Easy activation with minimal effort due to the ergonomic activation lever
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- Wear-resistant magnetic contact area made of hardened steel with TiN-coating preventing damages and guaranteeing a long lifetime

Technical data TML 250 F:
- Dead weight: 3.5 kg
- Breakaway force: 750 kg
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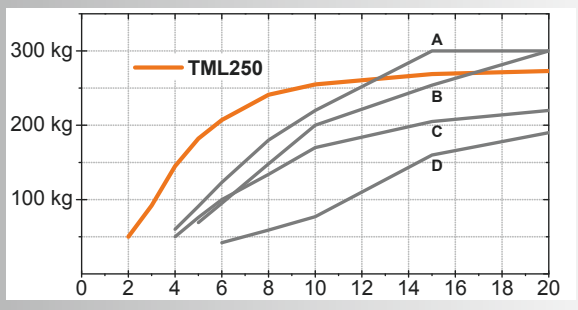
- Length: 240 mm (closed lever), width: 91 mm, height: 191 mm (opened lever)
- Magnetic contact area: length: 135 mm, width: 65 mm



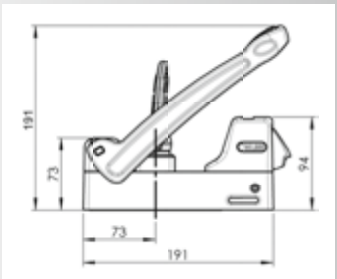
Competitors:

A: 300 kg Permanent magnet; 9 kg Dead weight

B: 300 kg Permanent magnet; 11 kg Dead weight

C: 250kg Permanent magnet; 10 kg Dead weight

D: 250kg Permanent magnet; 10 kg Dead weight



	Prod.-No.
ALFRA TML 250 F	41250.F

Lifting Magnet TML 500 F

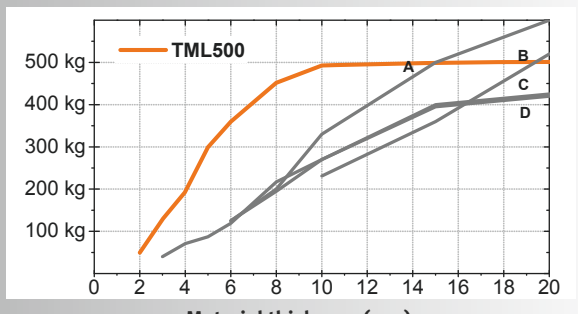
1. Only 7.3 kg dead weight
2. Max. load-bearing capacity: 500 kg (with 3:1 safety factor)
3. One-handed operation (‘inside’ steel beam possible)
4. Ideal for use in spreader bars due to its rigid eye bolt

US Patent No. 8350663B1

- Up to 490 kg load-bearing capacity from a material thickness of 10 mm and 300 kg from just 5 mm material thickness on steel S235 plus 3:1 safety factor (i.e. the force which leads to the breakaway of the metal sheet must represent triple the maximum holding force)
- Outstanding performance on thin-walled materials (useable from as low as 2 mm)
- Up to 70 % less dead weight with at least the same performance in contrast to conventional magnets
- Easy activation with minimal effort due to the ergonomic activation lever
- Innovative operational concept allows for an enlarged operating range
- Wear-resistant magnetic contact area made of hardened steel with TiN-coating preventing damages and guaranteeing a long lifetime

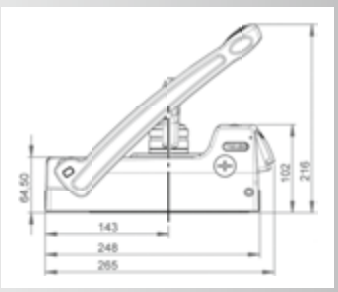
Technical data TML 500 F:

- Dead weight: 7.3 kg
- Breakaway force: 1500 kg
- Max. load-bearing capacity: 500 kg (with 3:1 safety factor)
- Length: 295 mm (closed lever), width: 118 mm, height: 216 mm (opened lever)
- Magnetic contact area: length: 185 mm, width: 88 mm



Competitors:

A: 600 kg Permanent magnet; 22 kg Dead weight
B: 600 kg Permanent magnet; 24 kg Dead weight
C: 500 kg Permanent magnet; 20 kg Dead weight
D: 500 kg Permanent magnet; 8 kg Dead weight



	Prod.-No.
ALFRA TML 500 F	41500.F


Compact, lightweight and highly adhesive, even on thin steel sheets. I've finally found a drill stand with a permanent magnet that is suited to my applications and provides 100 % safety!
Min. material thickness: only 2 mm
SP-V
MAGNETIC SYSTEMS
PATENTED
US Patent No. 8350663B1

Universal Magnetic Drill Stand SP-V

Variable clamps allow for the use of different drilling machines. This drill stand features a so-called Euro Collet Clamp and a permanent magnet allowing for the wireless use of battery-powered drilling machines and providing a nearly infinite operation range–from just 2 mm material thickness.

US Patent No. 8350663B1

SP-V	
Twist drill	Ø depending on drilling machine
Stroke	105 mm
Height adjustment	80 mm
Tool force (on 10 mm)/ magnetic holding force	2800 N / 8000 N
Tool force (6 mm S235)	2300 N
Magnetic base	72 x 190 mm
Weight	6.8 kg
Magnet	
TiN-coating	✔
Performance and weight optimisation	✔
Made in Germany	✔

Useable from just 2 mm due to permanent magnet

	Prod.-No.
ALFRA Universal Magnetic Drill Stand SP-V	18343

One magnet–endless possibilities

The TMC 300 is configurable in many different ways to suit ‚your' application. Connection threads on the top and the external sides provide maximum versatility.

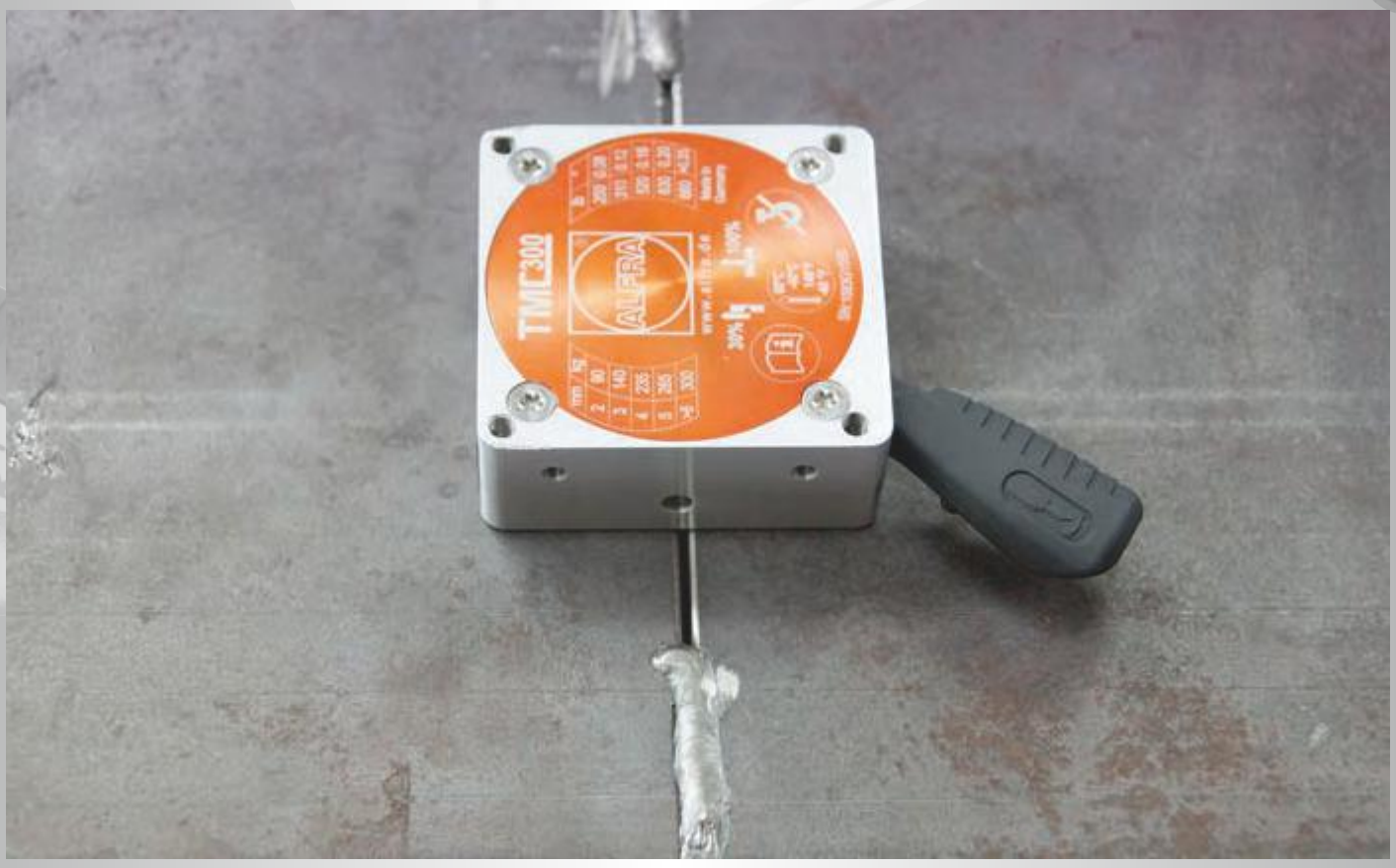
1. Only 1 kg dead weight
2. Up to 300 kg load-bearing capacity (vertically)
3. Easy one-handed operation

MAGNETIC SYSTEMS
PATENTED
US Patent No. 8350663B1

US Patent No. 8350663B1

- Excellent holding force up to 300 kg–even on a steel plate with 6 mm thickness only
- User-friendly one-handed operation thanks to ergonomic activation lever
- Connection threads (M5 and M6) on the top and the sides of the TMC 300 allow for the easy attachment of handling accessories such as cutting guides, angle side plates, handles, and much more
- Ideal tool to ease your work, e.g. during levelling of plates, platform construction, fixation, or any kind of clamping technique!
- The specially aligned magnetic field (patented) makes welding at a distance of 15 mm from the magnet's external side possible
- Wear-resistant magnetic contact area made of hardened steel with TiN-coating preventing damages and guaranteeing a long lifetime
- Unbelievable shear force for better hold, especially during vertical applications

Technical data TMC 300:
- Dead weight: 1 kg
- Breakaway force: 300 kg (on 6 mm steel S235)
- Length: 82.5 mm; width: 80 mm; height: 32.5 mm



	Prod.-No.
ALFRA TMC 300	41100

Lifting Magnet TML 100

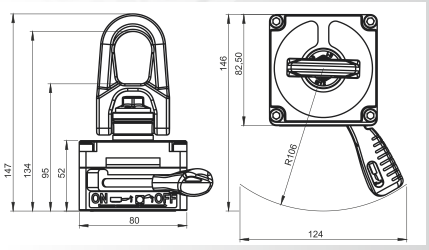
1. Only 1.7 dead weight
2. Max. load-bearing capacity: 100 kg (with 3:1 safety factor)
3. 360° rotable and 180° pivotable load swivel
4. Easy one-handed operation

US Patent No. 8350663B1

- Max. load-bearing capacity of 50 kg with 3 mm material thickness and 100 kg load-bearing capacity from just 6 mm (plus triple safety factor)
- Outstanding performance on thin-walled materials (operable from just 1 mm)
- 360° rotable and 180° pivotable load swivel–even under full load
- Wear-resistant magnetic contact area made of hardened steel with TiN-coating preventing damages and guaranteeing a long lifetime

Technical data TML 100:

- Dead weight: 1.7 kg
- Breakaway force: 300 kg (on 6 mm steel S235)
- Max. load-bearing capacity during vertical lifts (90° inclination of the load): 30 kg (from 6 mm S235 with 3:1 safety factor)
- Length: 82.5 mm; width: 80 mm;
  height (load swivel in horizontal position): 85 mm,
  height (load swivel in vertical position): 147 mm



	Prod.-No.
ALFRA TML 100	41100.L

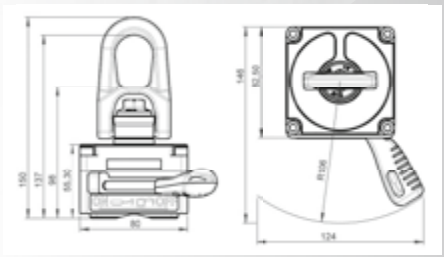
R With prism for pipes and curved surfaces
Lifts pipes from 25 mm to 200 mm in diameter

1. Only 1.8 kg dead weight
2. Max. load-bearing capacity: 90 kg (with 3:1 safety factor)
3. 360° rotatable and 180° pivotable load swivel
4. Easy one-handed operation

MADE IN GERMANY

US Patent No. 8350663B1

- Lifts pipes from 25 mm to 200 mm in diameter
- Outstanding performance on thin-walled materials (operable from just 1 mm)
- 360° rotable and 180° pivotable load swivel–even under full load
- Wear-resistant magnetic contact area made of hardened steel with TiN-coating preventing damages and guaranteeing a long lifetime



Technical data TML 90 R:
- Dead weight: 1.8 kg
- Breakaway force: 270 kg (on 6 mm steel S 235)
- Max. load-bearing capacity with round pipes: 20 - 50 % of the load-bearing capacity on flat material (see TML 100), depending on pipe diameter and material thickness
- Length: 82.5 mm; width: 80 mm;
  height (load swivel in horizontal position): 88 mm
  height (load swivel in vertical position): 150 mm

	Prod.-No.
ALFRA TML 90 R	41100.L.R

Lifting Magnet TML 100 F

1. Only 1.6 kg dead weight
2. Max. load-bearing capacity: 100 kg (with 3:1 safety factor)
3. Easy one-handed operation
4. Ideal for use in spreader bars due to its rigid eye bolt

US Patent No. 8350663B1

- Max. load-bearing capacity of 50 kg with 3 mm material thickness and 100 kg load-bearing capacity from just 6 mm (plus triple safety factor)
- Outstanding performance on thin-walled materials (useable with thicknesses as low as 1 mm)
- Wear-resistant magnetic contact area made of hardened steel with TiN-coating preventing damages and guaranteeing a long lifetime

Technical data TML 100 F:
- Dead weight: 1.6 kg
- Breakaway force: 300 kg (on 6 mm steel S235)
- Max. load-bearing capacity: 100 kg (with 3:1 safety factor)
- Length: 82.5 mm; width: 80 mm; height: 118 mm

	Prod.-No.
ALFRA TML 100 F	41100.L.F

Manual Lifting Magnet TMH 50

1. Only 1.6 kg dead weight
2. Large, stable handle

US Patent No. 8350663B1

- Up to 50 kg load-bearing capacity on a steel sheet S235 with a thickness of just 3 mm
- Protects hands and fingers from hot and sharp-edged steel
- A must have for everyone who needs to move welding parts from one place to another (max. temperature: 60°)
- Wear-resistant magnetic contact area made of hardened steel with TiN-coating preventing damages and guaranteeing a long lifetime

Technical data TMH 50:

- Dead weight: 1.6 kg
- Max. load-bearing capacity on flat material: 50 kg (on 3 mm steel S235)
- Max. load-bearing capacity during vertical lifts: 35 kg (on 3 mm steel S235)
- Length: 126 mm; width: 80 mm; height: 100 mm (incl. lever: length 190 mm, width 124 mm)

	Prod.-No.
ALFRA TMH 50	41100.H

Manual Lifting Magnet TMH 50 R

1. Only 1.6 kg dead weight
2. Large, stable handle

R With prism for pipes and curved surfaces
Lifts pipes from 25 mm to 200 mm in diameter

- Lifts pipes from 25 mm to 200 mm in diameter
- Protects hands and fingers from hot and sharp-edged steel
- A must have for everyone who needs to move welding parts from one place to another (max. Temperature: 60°)
- Wear-resistant magnetic contact area made of hardened steel with TiN-coating preventing damages and guaranteeing a long lifetime

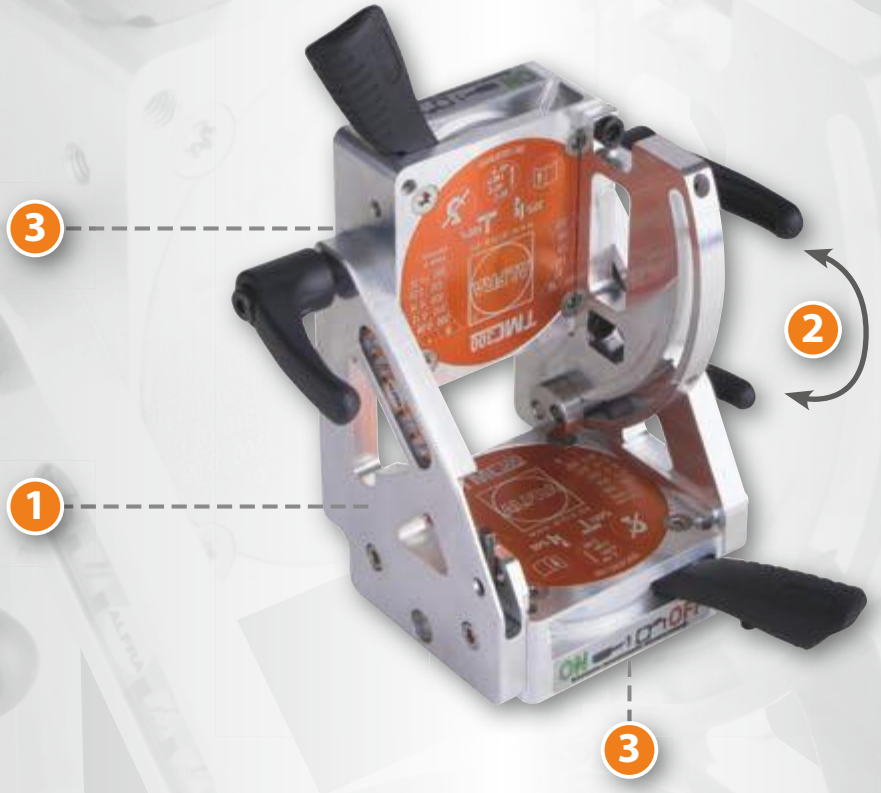
Technical data TMH 50 R:

- Dead weight: 1.6 kg
- Max. load-bearing capacity on round pipes: 20 - 50 % of flat material (see TMH 50), subject to pipe diameter and material thickness
- Length: 126 mm; width: 80 mm; height: 100 mm (incl. lever: length 190 mm, width 124 mm)

	Prod.-No.
ALFRA TMH 50 R	41100.H.R

Adjustable Welding Angle TMA 600

1. Only 2.7 kg dead weight
2. Infinitely adjustable from 0° to 90°
3. Including two TMC 300 Magnetic Clamps providing a max. holding force of up to 2 x 300 kg (perpendicular to the magnetic contact area)



MADE IN GERMANY

US Patent No. 8350663B1

- Highly adjustable angle side plates with a range from 0° to 90° for holding and welding workpieces
- Quick clamping levers for easy fixation/adjusting
- A must have for everyone who needs to weld heavy workpieces together at different angles
- Lightweight, easy and trouble-free handling
- Wear-resistant magnetic contact area made of hardened steel with TiN-coating preventing damages and guaranteeing a long lifetime

Technical data TMA 600:

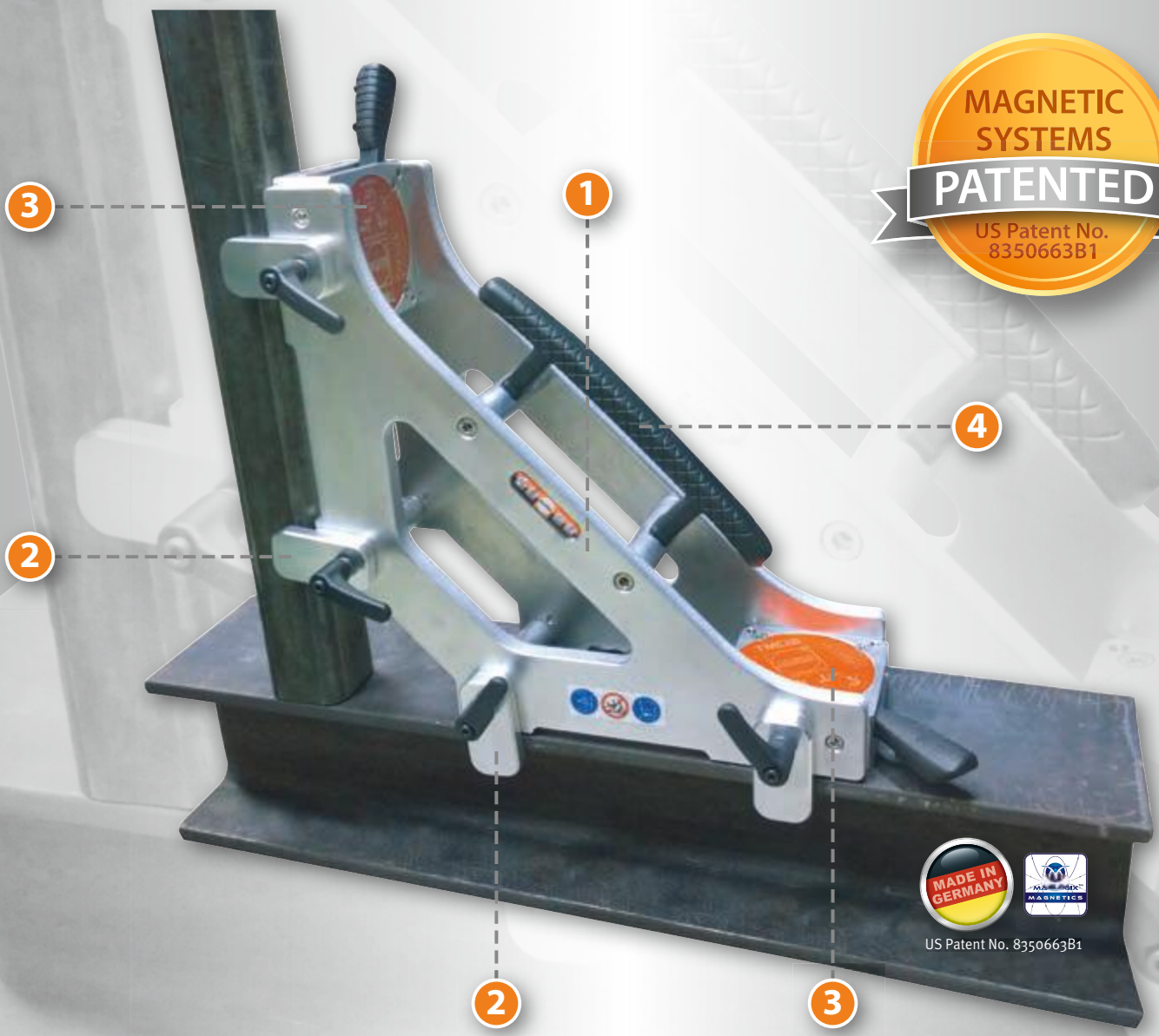
- Breakaway force: 300 kg per TMC 300 (on 6 mm steel S235)
- Shear force: up to 100 kg
- Dead weight: 2.7 kg
- Length: 162 mm; width: 124 mm; height: 223 mm

	Prod.-No.
ALFRA TMA 600	41100.A

Fixed Welding Angle TMA 600 FXL

High performance, lightweight–the TMA 600 represents the ideal Positioning Magnet for an optimum 90° alignment of components in steel and metal construction!

1. **Only 4.7 kg dead weight**
2. **Foldaway lateral stops for optimum, linear alignment**
3. **Including two TMC 300 Magnetic Clamps providing a max. load capacity up to 2 x 300 kg, operable from just 1 mm**
4. **Large, sturdy handle**



MAGNETIC SYSTEMS PATENTED
US Patent No. 8350663B1

MADE IN GERMANY

US Patent No. 8350663B1

- Extremely warp-resistant, light frame made of high-quality aluminium
- Optimal positioning and safe handling due to extra large, ergonomic, and slip-proof handle
- Additional support along the magnetic area for more precision, even when working with long, heavy workpieces
- A lot of space for safe and comfortable fillet welding
- Four adjustable lateral stops allowing for the alignment of even long work pieces in a way that is linearly and dimensionally stable
- Wear-resistant magnetic contact area made of hardened steel with TiN-coating preventing damages and guaranteeing a long lifetime

Technical data TMA 600 F XL:
- Weight: 4.7 kg
- Width: max. 145 mm (without stop: 103 mm)
- Height: 355 mm
- Length: 355 mm

	Prod.-No.
ALFRA – TMA 600 F XL	41160.F.XL

Levelling/Positioning Magnet TMP 600 MP

Extremely lightweight Positioning Magnet for all purposes with the highest requirements during alignment of metal plates and other components at the same level. The ideal tool for use in steel, container, and metal construction.

1. **Only 6.0 kg dead weight**
2. **Can take a load up to 600 kg and is operable from just 1 mm**
3. **Can be upgraded to a 'small welding bench' with the use of different supplements**

MADE IN GERMANY

US Patent No. 8350663B1

Explore maximum functionality with minimum effort: Additional components of this easy to use magnet eliminate the need for a welding bench. This magnet allows for the ideal, free and flexible positioning of plane steel sheets from just 1 mm thickness.

- Very stable connecting plate (25 mm) made of high performance aluminium for the precise alignment of components–even with heavy workpieces
- Multiple functions combined in one tool:
  - Picking up and transporting workpieces
  - Positioning assistance during welding
- The first magnet is used to pick up a workpiece, move it to another welding piece, position it and align it while the second magnet fixes it tightly in this position
- Welding is then possible on the left or right side or through the hole in the middle. A fine and precise weld formation is also possible between the magnets
- The minimum distance from the magnet for welding is only 10 - 15 mm depending on the material thickness since the patented magnetic system hardly disrupts the arc
- Wear-resistant magnetic contact area made of hardened steel with TiN-coating preventing damages and guaranteeing a long lifetime

Technical data (without accessories):
- Weight: 6.0 kg
- Length: max. 344 mm (incl. lever)
- Width: 200 mm
- Height: 115 mm

Optional:
- Replaceable sockets with Ø 16 mm and 28 mm fit all common welding bench clamping systems
- Plug-in supports for maximum gripping pressure under the screw clamp:
  - Max. 400 kg / 4000 N at a 20 mm distance to the side edge
  - Max. 300 kg / 3000 N at a 40 mm distance to the side edge
  - Max. 175 kg / 1750 N at a 180 mm distance to the side edge

The new TMP system offers a multitude of different combination options for positioning workpieces quickly and safely in different arrangements.

Technical data (with accessories):
- Weight: 6.5 kg
- Length: max. 344 mm
- Width: 200 mm
- Height: 115 mm

	Prod.-No.
ALFRA TMP 600 MP	41160.MP

Positioning Magnet Mag-Pry® 300

The Mag-Pry® 300 is an indispensable assistant for aligning steel plates or sheet metal covering which need to be welded together at the same level.
The perfect tool for professionals in container, mould and plate construction and in shipyards.

1. Only 2.27 kg dead weight
2. Long, stable lever arm
3. Solid support for perfect pressing
4. 300 kg holding force

MADE IN GERMANY

US Patent No. 7.587.800B2
US Patent No. 8.240.017B2

Technical data MagPry® 300:

- Prying force: 200 kg (on 3 mm steel S235)
- Height (vertical): 505 mm
- Height (horizontal): 564 mm
- Width (outside edge lever arm to bottom edge support): 79 mm
- Width: 139 mm
- Depth: 80 mm
- Weight: 2.27 kg

	Prod.-No.
ALFRA Mag-Pry®	41100.pry

1. Adjustable telescopic handle
2. Max. capacity: 9 kg

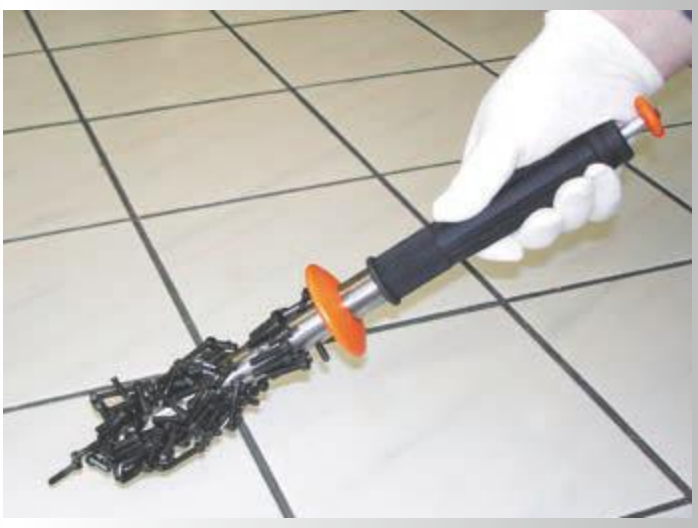
- For quick and easy cleaning of floors in different working areas
- Pull capacity up to 9 kg
- Easy removal of the collected metal parts thanks to easy release mechanism on the handle
- Sweeping width: 400 mm
- Telescopic handle adjustable from 750 to 1050 mm

	Prod.-No.
ALFRA Magnetic Sweeper	18655

Magnetic Swarf Remover

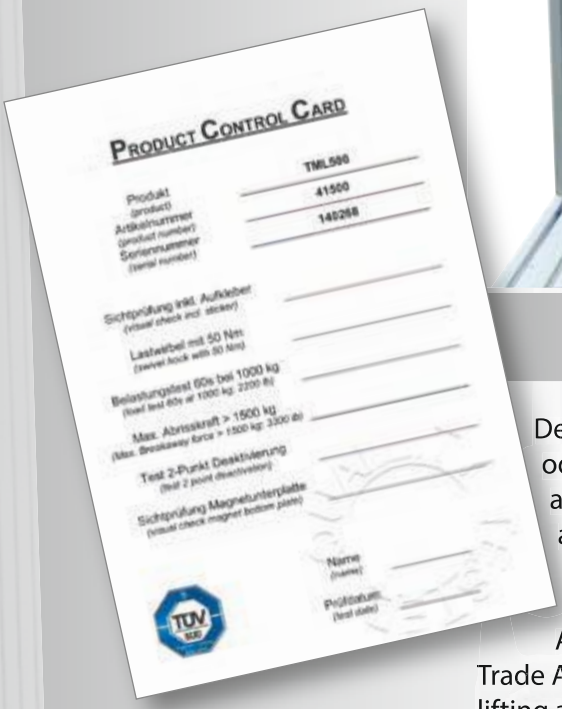
1. Telescopic handle for the release and removal of debris
2. Sturdy rubber handle
3. Strapper and protection from injury

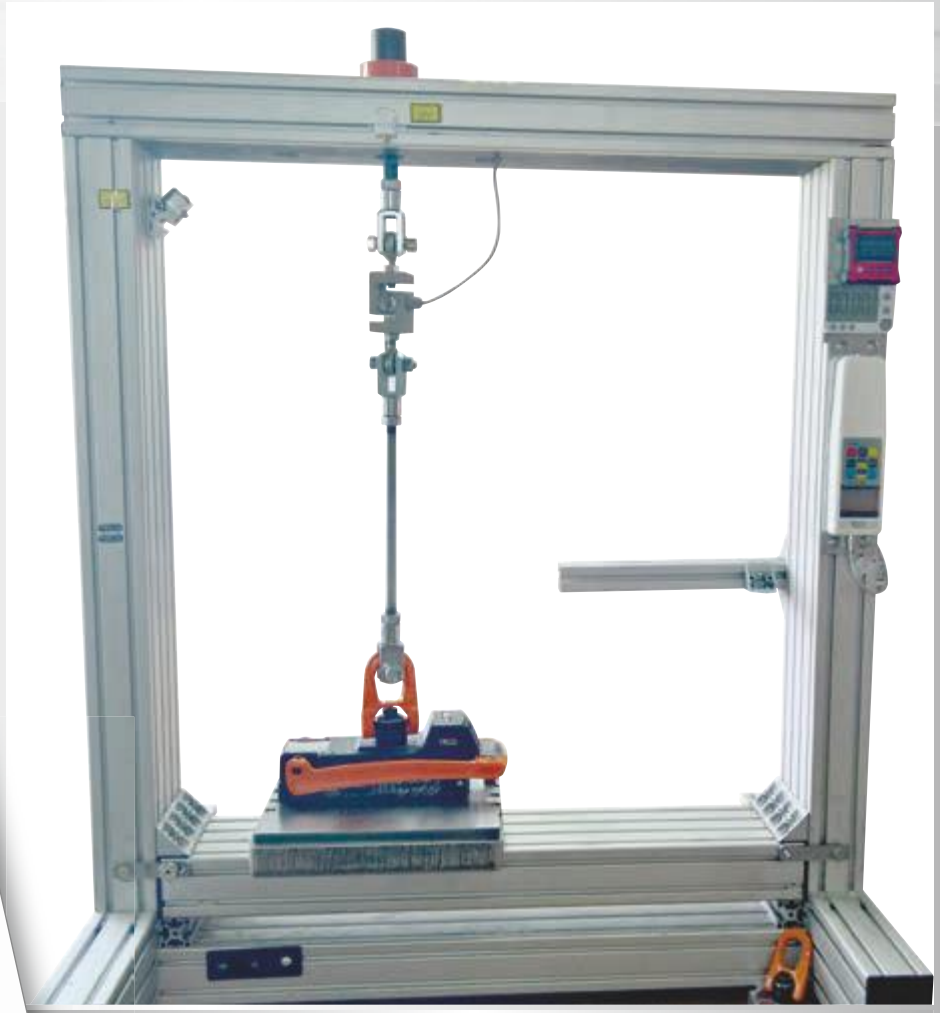
- Move a magnet inside a stainless round bar up and down and the highly adhesive magnet attracts metal swarf. Then pull the button–swarf fall down
- More cleanness on the workplace
- Magnetic Swarf Remover, length: 400 mm



	Prod.-No.
ALFRA – Magnetic Swarf Remover	18654

Service and Inspections Carried out by the Manufacturer in Accordance with Legal Requirements





TÜV-CERTIFIED TESTING STATION IN OUR PRODUCTION SITE IN BERLIN

Despite utmost care and periodic maintenance, magnets are subject to permanent wear and tear and require regular inspections.

According to the German Trade Association Regulation 500, lifting accessories must be inspected once a year by a competent person (see BGR 500, chapter 2.8 „Operation of Lifting Accessories used with Lifting Machinery“).
We will be glad to assume the annual inspection for you first-hand and guarantee that it will be performed quickly, cost-effectively and in accordance with legal requirements.

Our engineers will evaluate your magnet with the highest possible professional expertise and repair it if necessary.

Our sales agents will be pleased to make an appointment for you. You may also send us an email:

TML-Test@alfra.de

Interesting Facts about TML/TMC Magnets
Frequently Asked Questions

1. What is the highlight of the new magnets?
Whether it is a Lifting Magnet, Positioning Magnet or a Welding Angle–magnets made by ALFRA are distinguishable due to their innovative design and provide outstanding performance and infinite new application possibilities. The patented magnetic system eliminates scattering losses and the magnet generates an extremely compact magnetic field.
A particular highlight is that the magnets are lightweight: A TML or TMC magnet easily and effortlessly achieves a lifting force that conventional lifting magnets can only reach with three times (if at all) the amount of dead weight. Another reason to choose an ALFRA Lifting Magnet is that TML and TMC magnets attain an excellent performance even on thin material–with a minimum thickness of only 1 mm!

2. How do I know how much the magnets can lift?
An illustrative graph can be found on the magnet's label indicating its load-bearing capacity, dependent upon the material's thickness. For detailed information on the load-bearing capacity of TML magnets and the factors that influence it, please refer to the operating instructions of your Lifting Magnet.
The TML 250 can for example safely lift 50 kg of steel at a thickness of 2 mm and 240 kg of steel at a thickness of 8 mm. A safety factor of 3:1 is always included. That means that, in fact, the magnet could lift 150 kg of steel at a thickness of 2 mm and 720 kg of steel at a thickness of 8 mm before it breaks away. The 3:1 safety factor is required by law. Be sure to work within the safety measures of the lifting scale and observe the performance data and safety instructions of the operating manual.

3. What do the terms *residual magnetism* and *pretension* mean?
These terms describe a reduced magnetic field that the magnet generates even when it is not activated. This pretension allows the customer to attach the magnet onto a vertical surface or even over his head and align the magnet without it falling off.
Thus, he can move the magnet to the perfect position for an optimum lifting process before pushing the activation lever down.

4. What is an *air gap*?
The small distance that may form between the magnetic contact area and the surface of the workpiece is referred to as an air gap. It may for instance occur due to a deformation of the material during the lifting process. An air gap that is too big will result in the breakaway of the magnet from the material surface. Therefore the entire magnetic contact area should rest on a plane surface of the material being lifted.

5. What is the advantage of the tight-fitting activation lever of the TML 250 and the TML 500?
The activation lever of conventional magnets protrudes at an angle of 90 degrees and sticks out to the side of the magnet–in most cases by several centimeters/inches. For this reason, the magnet can only be attached to areas that are wide enough for the protruding lever.
Due to its special design, the stable activation lever of the ALFRA TML magnets, TML 250 and TML 500, rests closely against the magnet housing. As the lever of the TML magnet is parallel to the base body of the magnet, it allows for the easy and effortless attachment of the magnet to narrow areas e.g. between I-beams.

6. Why is the bottom plate of ALFRA magnets hardened and coated?
The magnetic contact area is located on the underside of the magnet. The installed permanent magnets generate an extremely powerful magnetic field to ensure an optimum magnetic adhesion.
High-quality, specially hardened steel with approx. 450 HV 30 (approx. 1400N/mm2) prevents damage to the magnetic contact area and protects it from wear and tear. A TiN-coating by means of 2500 HV 0.05 additionally increases the durability of the magnetic contact area. For this reason, ALFRA magnets provide a long service life. However, this is not the only benefit. In contrast to conventional magnets, the bottom plate of the TML and TMC magnets no longer needs to be regrinded.

7. What is a magnetic *shearing stroke*?
The term shearing stroke describes the vertical lifting of a work piece. The most common kind of shearing stroke is the sidelong vertical lifting of steel sheets or thin steel beams from a stack.
Due to this, the Lifting Magnet is able to vertically lift the work piece up to 90°. In contrast to conventional magnets, the TML Lifting Magnet even allows for the lifting of a 4 mm thick single steel sheet from a stack. This means that the magnet's attractive force will not be exerted onto the subjacent work piece. With an ALFRA TML magnet, the so-called 'sticking together' of two work pieces now belongs in the past.

8. Can rust or paint reduce the magnet's load capacity?
Magnetic Clamps and Lifting Magnets also achieve an excellent adhesive force even on rusty, lacquered or powder-coated surfaces. For detailed information on the performance of your TMC or TML magnet please refer to the operating instructions.

9. What is the impact of extreme temperature on TML/TMC magnets?
Even high temperatures of up to 60°C have no impact on the performance of our TML and TMC magnets. At temperatures above 60°C or in the event of heat generation near the magnet (e.g. during welding), the integrated high performance permanent magnets may be damaged. For this reason the magnet should be removed from the heat source as quickly as possible.

Low temperatures do not decrease the performance of your magnet either since the magnetic molecules align simultaneously in one direction (and thus maintain the magnetic field). Although the magnet slowly loses its lifting power at -150°C, the use of TML/TMC magnets at low temperatures must be restricted due to certain components:
Components made of aluminum or plastic for example become brittle and may break at a temperature below -30°C. The grease does not endure very low temperatures and may become hard. To ensure a long service life and the safety function of your ALFRA magnet, TMC magnets may only be used up to -30°C maximum and TML magnets up to 10°C maximum.

10. Why do TML and TMC magnets have different operating temperatures?
The Lifting Magnets TML 250 and TML 500 are equipped with a special safety tab whose proper function may be limited at very low temperatures. The TML 500 is additionally equipped with a special feature–a hydraulic damper. Thanks to the integrated variable damper the user can adjust the recoil energy according to the desired requirements. As the oil inside the damper loses its viscosity with decreasing temperature, the magnet must not be used below -10°C. TML and TMC models without a safety tab and variable damper may still operate up to -30°C.

11. Does the magnet require examination after a certain period of time?
Lifting accessories such as our TML magnets must be checked regularly. This includes particularly an annual inspection of the triple safety factor. Maintenance and care of the magnets are subject to country-specific regulations and standards. In Germany regular inspections are prescribed by sec.3, subs.3 of the German Ordinance on Industrial Safety and Health (BetrSichV). The examination of the triple safety factor must be performed once a year by a competent person according to the German Trade Association Regulation BGR 500. The operator is responsible for the adherence to the regular inspection of the magnet. Always observe the regulations in your country. Clamping Magnets such as the TMC 300 must not be used for the lifting or transportation of loads and thus do not require an annual examination.

12. Who is allowed to perform the inspection?
According to the Trade Association Regulation 500 (chapter 2.8: sec.3.15), the employer determines the requirements that the person carrying out the inspection must fulfill ('competent person').
They can be experts such as engineers, machine and crane foremen or specially trained persons provided that they possess adequate knowledge as well as sufficient experience of slings and lifting accessories and are familiar with the relevant national occupational health and safety regulations, trade association regulations and generally accepted rules of technology (e.g. BGR regulations, DIN- EN-standards, DIN-standards, ISO standards).
Furthermore, the examination of the triple safety factor for the Lifting Magnet requires a special pull-off unit which is equipped with calibrated test equipment. We would be happy to perform the inspection of your ALFRA lifting accessories for you at our premises.

13. Can loads also be lifted vertically?
Due to the innovative ALFRA Magnetic System, the vertical lifting of loads is no longer a problem. In particular, the TML 500 is an excellent device to lift components vertically. The magnet's load swivel (also called load hook) is pulled up vertically by means of a flexible soft eye, following the direction of the force action, and lies close to the level housing of the TML magnet.

14. Which forces act during a vertical lift?
There are some particularities to note in terms of the vertical lifting of loads. If the load and the magnet surface tilt at an angle other than 0° to horizontal, the load-bearing capacity decreases due to the new alignment of the magnet to the gravity of Earth. As soon as the load is suspended vertically, i.e. at an angle of 90°, friction will be the only effect exerted by the magnet. Depending on the material being lifted this is not more than 10 - 35% of the maximum load-bearing capacity.
Further information on the use of TML magnets during pivoting or vertical lifting can be found in the operation manual of your ALFRA magnet. All information and safety instructions contained in the operation manual must be closely observed.

15. Are the magnets only suitable for the lifting of loads?
The wide range of ALFRA magnets includes a multitude of applications that go far beyond the lifting of loads. For example, TML magnets are ideally suited to shearing loads. Moreover, magnets made by ALFRA also represent the ideal tools to facilitate your work if you want to align, position or join ferromagnetic workpieces.

Visit ALFRA on Youtube and discover a multitude of interesting applications: simply type the product name and ALFRA to be convinced of the benefits of our permanent magnets!

We wish you much joy and success when using our products.

ALFRA - Your Alfred Raith GmbH

All technical specifications, descriptions and illustrations in this catalogue are non-binding. We reserve the right to make changes due to the ongoing development of our products.

We accept no liability for any printing errors.

Publication of this catalogue makes all previous catalogues invalid.

As of October 2016

This catalogue was created with the greatest possible care. All technical data and information was verified before printing.
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