ALFRA®

Passion for Tools

APPLICATION SOLUTIONS
MAGNETICS AND LIFTING TECHNOLOGY

THE STORY OF THE COVER PICTURE

Flyweight for heavy duties
Seven years ago at the Cologne hardware fair, we presented a new, globally unique magnet system for the first time: TML (Thin Material Lifting). These are three letters that represent many special properties. The most important: even with very thin-walled magnetic material, TML (from p.4) achieves massive holding forces – with exceptionally low weight of the product itself. Users employ lifting magnets from this innovative system even from a material thickness of only two millimetres – for example on construction sites, in shipyards or in metal construction.

You are the visual type: the QR code on page 9 will take you directly to the animated explanatory video on TML technology!

Magnets from the TML system help our customers including with lifting loads, positioning flat and round steel, welding or plasma cutting.

Success story of an idea
This has given rise to an independent programme for "lifting – positioning – problem-solving", the diversity of which you can see for yourself in the present catalogue. One thing here makes us especially proud: we supply certified quality "made in Germany", which is very popular. Application solutions for our magnetic and lifting technology make everyday working life easier for metalworkers all over the world. ALFRA holding magnets from the TMC range (Thin Material Clamping, from page 28) in particular are increasingly in demand by users from a wide variety of industries, for example for levelling panels, in platform construction, in fixing and clamping technology or for lifting pipes.

One technology – many applications
What could be more obvious than further improvement of our own traditional product range with new technology? TML magnets with the permanent magnetic technology in the ALFRA special catalogue for steel and metal construction can therefore also be found in use in our metal core drilling machines (from page 16).

Yet we at ALFRA do even more for you. Above and beyond the highest quality requirements, other values count in the development and production of our tools: energy awareness and safety optimisation are not empty phrases for our dedicated employees but rather the benchmark for completion of their tasks.

We hope you enjoy the ALFRA magnetic and lifting technology catalogue and perfect work progress using our products.

Yours
ALFRA GmbH

Certified energy awareness at ALFRA

Our products ensure smooth processes in the working environment of our customers. We are proud of this. However, it is not only quality that counts for us but also how we get there. Sustainability is therefore not an empty phrase for ALFRA; our commitment with regard to energy awareness has been certified in accordance with the ISO standard since 1997.

400 tonnes fewer CO_2 emissions

The figures prove it: we "are not just talking about it". With 400 tonnes fewer CO_2 emissions in four years, we are making our contribution in the fight against climate change.

600 megawatt hours of electricity for our own needs

As a manufacturer, we determine the entire production process in accordance with our philosophy. Specifically: ALFRA relies on alternative energies wherever this makes sense, for example with electricity from photovoltaics. 600 megawatt hours of energy from solar cells facilitate almost climate-neutral production.

We feel responsible – for the satisfaction of our customers and for environmentally friendly production. The aim: to do our best for both every day.

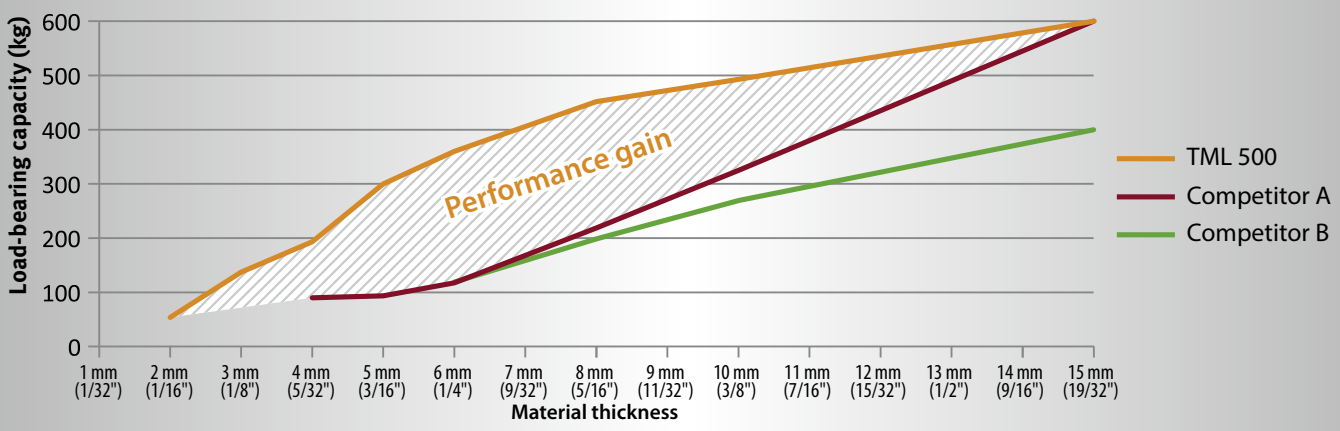
MADE IN GERMANY

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!

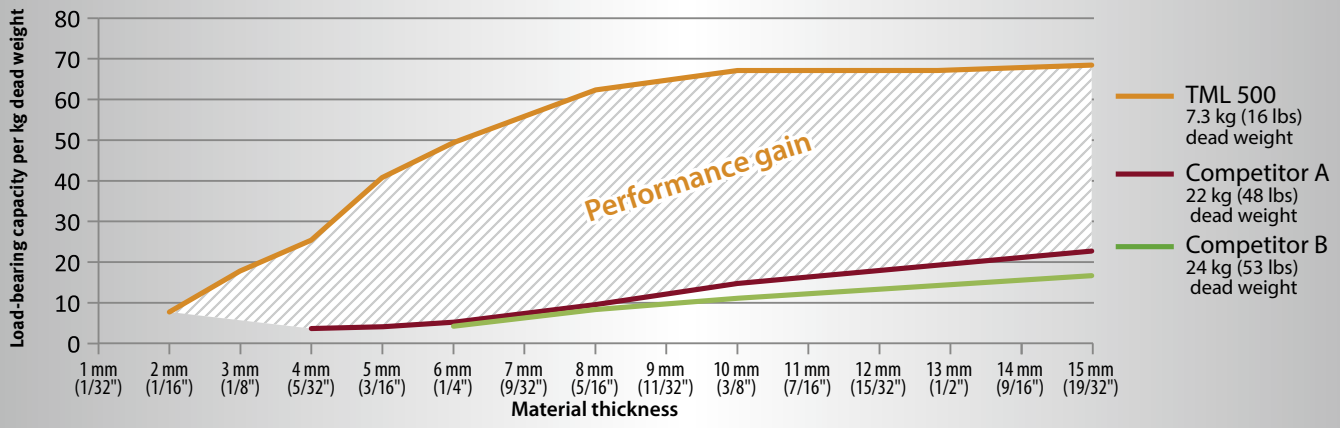


A comparison of the performance data of the TML 500 and two conventional magnets reveals how powerful the TML 500 is, especially when used on thin materials.

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 (110 lbs) on just 2 mm (1/16") and 195 kg (430 lbs) on 4 mm (5/32") 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 (1/16")!

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 (9/16") 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 (1/16")!

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

SPECIAL / PROBLEM SOLUTIONS

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!“

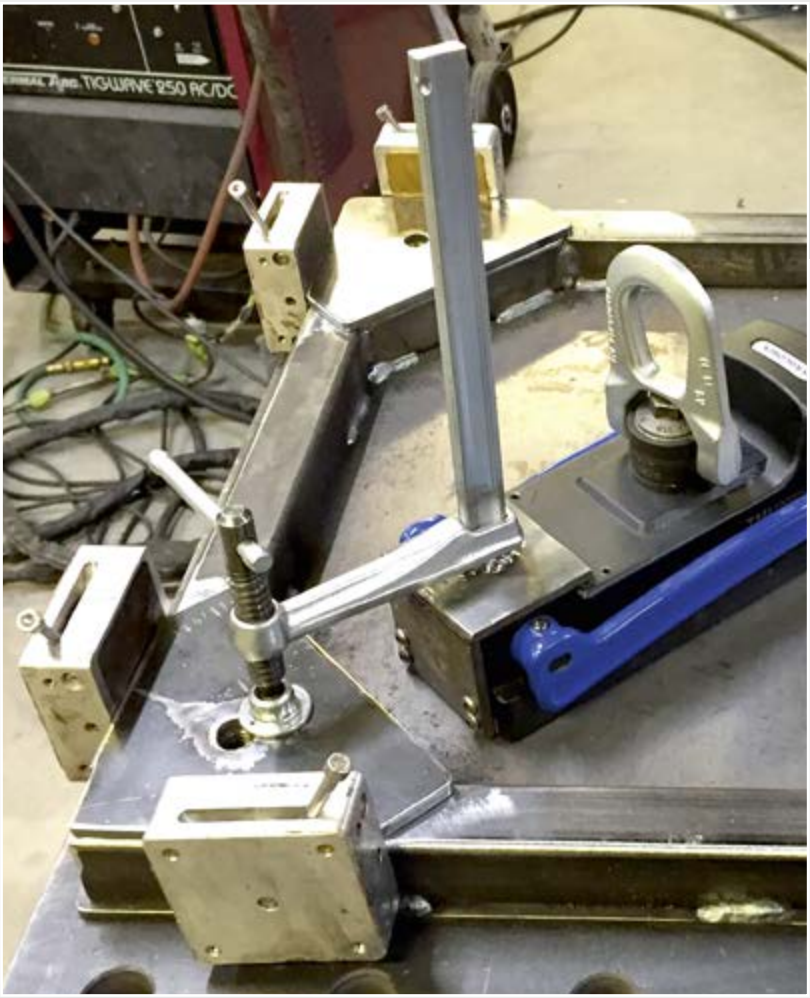
SHIPBUILDING–TURKU/FINLAND – ALEKSI

LIFTING–RECIFE/BRAZIL – PEDRO

PLASMA CUTTING–MANCHESTER/UK – STEVE

CONTAINER CONSTRUCTION–WROCŁAW/POLAND – MAREK

ALFRA MAGNETS IN ACTION



Thin Material Lifting explained simply
Watch our animated video here

VIDEO

METAL CONSTRUCTION–NUREMBERG/GERMANY – OLIVER

HALL CONSTRUCTION– BLOOMFIELD/USA – RICARDO

MOULD CONSTRUCTION– SYDNEY/AUSTRALIA – ANDY

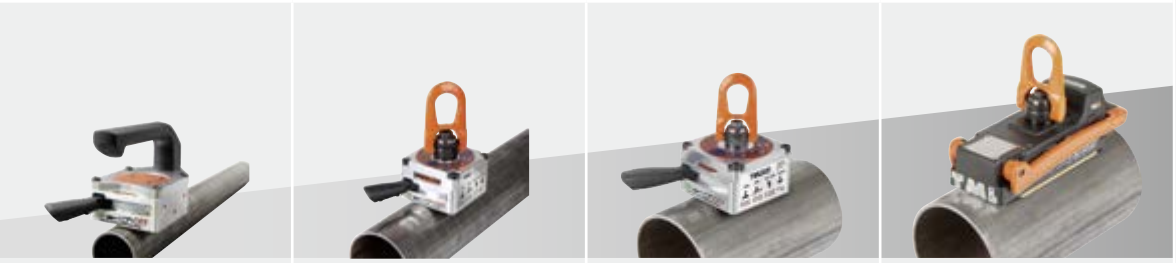
CUSTOM CONSTRUCTION– PRAGUE/CZECH REPUBLIC – PETR

MAGNETIC AND LIFTING TECHNOLOGY - OVERVIEW

LOAD-LIFTING - FLAT STEEL

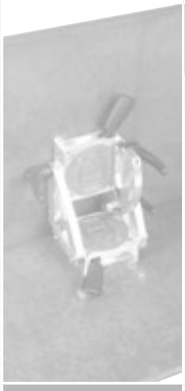
	50 KG (110 LBS)	100 KG (220 LBS)		200 KG (440 LBS)	250 KG (550 LBS)		500 KG (1,100 LBS)		1,000 KG (2,200 LBS)
									
	TMH 50	TML 100	TML 100 F	TML 200	TML 250	TML 250 F	TML 500	TML 500 F	TML 1000
Page	25	20	22	23	12 - 13	18	14 - 15	19	16 - 17
Prod.-No.	41100.H	41100.L	41100.L.F	41200.L	41250	41250.F	41500	41500.F	41700
Max. load-bearing capacity	50 kg (110 lbs)	100 kg (220 lbs)	100 kg (220 lbs)	200 kg (440 lbs)	250 kg (550 lbs)	250 kg (550 lbs)	500 kg (1,100 lb)	500 kg (1,100 lb)	1,000 kg (2,200 lbs)
Breakaway force	› 300 kg (660 lbs) on 6 mm (1/4") steel S235 (without adapter plate)	› 300 kg (660 lbs) on 6 mm (1/4") steel S235	› 300 kg (660 lbs) on 6 mm (1/4") steel S235	› 600 kg (1,323 lbs) on 10 mm (3/8") steel S235	› 750 kg (1,653 lbs) on 10 mm (3/8") steel S235	› 750 kg (1,653 lbs) on 10 mm (3/8") steel S235	› 1,500 kg (3,300 lbs) on 15 mm (9/16") steel S235	› 1,500 kg (3,300 lbs) on 15 mm (9/16") steel S235	3,400 kg (7,500 lbs) on 12 mm (1/2") steel S235
Min. material thickness	1 mm (1/32")	1 mm (1/32")	1 mm (1/32")	2 mm (1/16")	2 mm (1/16")	2 mm (1/16")	2 mm (1/16")	2 mm (1/16")	2 mm (1/16")
Dead weight	1.6 kg (3.5 lbs)	1.7 kg (3.7 lbs)	1.6 kg (3.5 lbs)	3.2 kg (7 lbs)	3.5 kg (7.7 lbs)	3.5 kg (7.7 lbs)	7.3 kg (16 lbs)	7.3 kg (16 lbs)	18.0 kg (238 lbs)
Dimensions LxW	126 x 80 mm (4-15/16" x 3-1/8")	82.5 x 80 mm (3-1/4" x 3-1/8")	82.5 x 80 mm (3-1/4" x 3-1/8")	107,5 x 105 mm (4-7/32 x 4-1/8 ")	191 x 71 mm (7-1/2" x 2 -13/16")	191 x 71 mm (7-1/2" x 2 -13/16")	265 x 118 mm (10-7/16" x 4-5/8")	265 x 118 mm (10-7/16" x 4-5/8")	403 x 103 mm (15-7/8" x 4-1/16")

LOAD-LIFTING - ROUND STEEL

	50 KG (110 LBS)	90 KG (200 LBS)	200 KG (440 LBS)	400 KG (880 LBS)
				
	TMH 50 R	TML 90 R	TML 200 R	TML 400 R
Page	26	21	24	27
Prod.-No.	41100.H.R	41100.L.R	41200.L.R	41400.R
Pipe diameter	25 - 200 mm (1" - 7-7/8")	25 - 200 mm (1" - 7-7/8")	50 - 400 mm (2" - 15-3/4")	50 - 400 mm (2" - 15-3/4")
Max. load-bearing capacity	50 kg* (110 lbs)*	90 kg* (200 lbs)*	200 kg* (440 lbs)*	400 kg* (880 lbs)*
Breakaway force	› 270 kg (595 lbs) on 6 mm (1/4") steel S235	› 270 kg (595 lbs) on 6 mm (1/4") steel S235	› 600 kg (1,323 lbs) on 10 mm (3/8") steel S235	› 1,200 kg (2,650 lbs) on 15 mm (9/16") S235
Min. material thickness	1 mm (1/32")	1 mm (1/32")	2 mm (1/16")	2 mm (1/16")
Dead weight	1.6 kg (3.5 lbs)	1.8 kg (4 lbs)	3.4 kg (7.5 lbs)	8.2 kg (18 lbs)
Dimensions LxW	126 x 80 mm (4-15/16" x 3-1/8")	82.5 x 80 mm (3-1/4" x 3-1/8")	107,5 x 105 mm (4-7/32 x 4-1/8 ")	265 x 118 mm(10-7/16" x 4-5/8")

*Max. load-bearing capacity on round pipes: 20 - 50 % of flat material subject to pipe diameter and material thickness

SPECIAL SOLUTIONS



	ANGLE FIXING		PLATES-LEVELING	POSITIONING/ INDIVIDUALIZATION				
	90° FIX	0° - 90°		FOR FLAT STEEL			FOR ROUND STEEL	
								
	TMA 600 F XL	TMA 600	MAG-PRY® 300	TMC 70	TMC 300	TMC 600	TMC 300 R	TMC 600 R
Page	34	35	38	28 - 29	30	32	31	33
Prod.-No.	41160.F.XL	41100.A	41100.pry	41070	41100	41200	41100.R	41200.R
Pipe diameter	-	-	-	-	-	-	25 - 200 mm (1" x 7-7/8")	50 - 300 mm (2" - 11-13/16")
Holding force	2 x 300 kg (2 x 660 lbs)	2 x 300 kg (2 x 660 lbs)	Prying force: 200 kg (440 lbs) (on 3 mm steel S235)	70 kg (155 lbs)	300 kg (660 lbs)	600 kg (1,323 lbs)	300 kg (660 lbs)	600 kg (1,323 lbs)
Breakaway force	› 300 kg (660 lbs) each TMC 300 on 6 mm (1/4") steel S235		› 300 kg (660 lbs) on 6 mm (1/4") steel S235	› 72 kg (158 lbs) on 6 mm (1/4") steel S235	› 300 kg (660 lbs) on 6 mm (1/4") steel S235	› 600 kg (1,323 lbs) on 10 mm (3/8") steel S235	› 300 kg (660 lbs) on 6 mm (1/4") steel S235	› 600 kg (1,323 lbs) on 6 mm (1/4") steel S235
Min. material thickness	1 mm (1/32")	1 mm (1/32")	1 mm (1/32")	1 mm (1/32")	1 mm (1/32")	1 mm (1/32")	1 mm (1/32")	1 mm (1/32")
Dead weight	4.7 kg (10.4 lbs)	2.7 kg (6 lbs)	2.27 kg (5 lbs)	0.29 kg (63 lbs)	1 kg (2.2 lbs)	2.6 kg (5.7 lbs)	1.1 kg (2.4 lbs)	2.7 kg (6 lbs)
Dimensions LxW	355 x 145 mm (14" x 5-11/16")	184 x 100 mm (7-1/4" x 3-15/16")	139 x 564 mm (Lever down) (5-1/2" x 23-1/16" Lever down)	69 x 50 mm (2-3/4" x 2")	82.5 x 80 mm (3-1/4" x 3-1/8")	108 x 105 mm (4-1/4" x 4-1/8")	82.5 x 80 mm (3-1/4" x 3-1/8")	108 x 105 mm (4-1/4" x 4-1/8")

UNIVERSAL MAGNETIC DRILL STAND SP-V

UNIVERSAL MAGNETIC DRILL STAND SP-V

Page	36 - 37
Prod.-No.	18343
Twist drill	Ø depending on drilling machine
Collar	Ø 43 mm Euro standard, Ø 48,6 mm, Ø 61,7 mm
Stroke	105 mm (4-1/8")
Height adjustment	80 mm (3-1/8")
Magnetic base	72 x 190 mm (2-13/16" x 7-1/2")
Dead weight	6.8 kg (15 lbs)

MAGNETIC SWARF REMOVER/ SWEEPER

MAGNETIC SWARF REMOVER/ SWEEPER

Page	39 - 40

ROUND SLING

ROUND SLING

Page	41

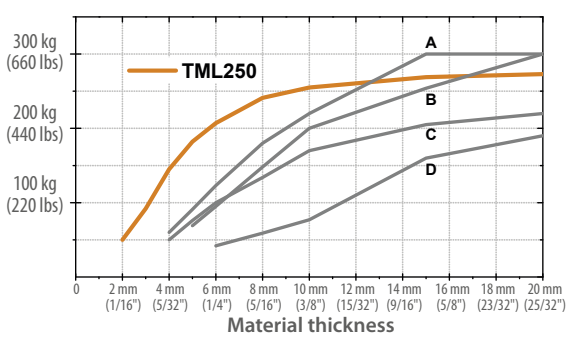

MAGNETIC
SYSTEMS
PATENTED
US Patent No.
8350663B1
TML250

LIFTING MAGNET TML 250

1. **Only 3.5 kg (7.7 lbs) dead weight**
2. **Max. load-bearing capacity: 250 kg (550 lbs) (with 3:1 safety factor)**
3. **360° rotatable and 180° pivotable load swivel**
4. **One-handed operation ('inside' steel beam possible)**

- Up to 250 kg (550 lbs) load-bearing capacity from a material thickness of 10 mm (3/8") and 90 kg (195 lbs) from just 3 mm (1/8") 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 (7.7 lbs)
- Breakaway force: › 750 kg (1,653 lbs) on 10 mm (3/8") steel S235
- Max. load-bearing capacity: 250 kg (550 lbs) (with 3:1 safety factor)
- Length: 240 mm (9-7/16") (closed lever), width: 91 mm (3-9/16"), height: 191 mm (7-1/2") (opened lever)
- Magnetic contact area: length: 135 mm (5-5/16"), width: 65 mm (2-9/16")



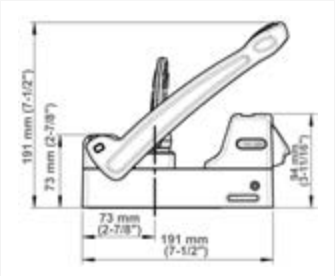
Competitors:

A: 300 kg (660 lbs) Permanent magnet; 9 kg (19.8 lbs) Dead weight

B: 300 kg (660 lbs) Permanent magnet; 11 kg (24.2 lbs) Dead weight

C: 250 kg (550 lbs) Permanent magnet; 10 kg (22 lbs) Dead weight

D: 250 kg (550 lbs) Permanent magnet; 10 kg (22 lbs) Dead weight



	Prod.-No.
ALFRA TML 250	41250

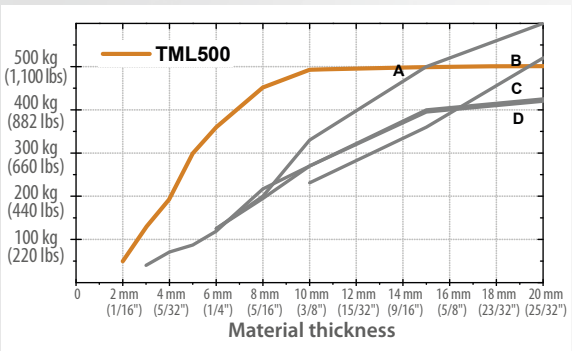

MAGNETIC
SYSTEMS
PATENTED
US Patent No.
8350663B1

LIFTING MAGNET TML 500

1. **Only 7.3 kg (16 lbs) dead weight**
2. **Max. load-bearing capacity: 500 kg (1,100 lb) (with 3:1 safety factor)**
3. **360° rotatable and 180° pivotable load swivel**
4. **One-handed operation ('inside' steel beam possible)**

- Up to 490 kg (1100 lbs) load-bearing capacity from a material thickness of 10 mm (3/8") and 300 kg (660 lbs) from just 5 mm (3/16") 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; 1/16")
- 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 (16 lbs)
- Breakaway force: › 1,500 kg (3,300 lbs) on 15 mm (9/16") steel S235
- Max. load-bearing capacity: 500 kg (1,100 lb) (with 3:1 safety factor)
- Max. load-bearing capacity during vertical lifts (90° inclination of the load): 150 kg (330 lbs) (from 15 mm; 9/16" on steel S235 with 3:1 safety factor)
- Length: 295 mm (11-5/8")(closed lever), width: 118 mm (4-5/8"), height: 216 mm (8-1/2") (opened lever)
- Magnetic contact area: length: 185 mm (7-1/4"), width: 88 mm (3-7/16")



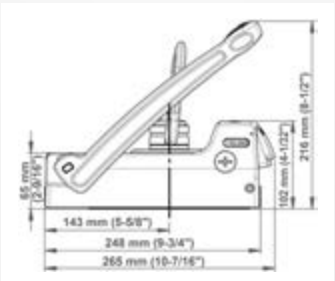
Competitors:

A: 600 kg (1,320 lbs) Permanent magnet; 22 kg (48.5 lbs) Dead weight

B: 600 kg (1,320 lbs) Permanent magnet; 24 kg (52.9 lbs) Dead weight

C: 500 kg (1,100 lbs) Permanent magnet; 20 kg (44 lbs) Dead weight

D: 500 kg (1,100 lbs) Permanent magnet; 8 kg (17.6 lbs) Dead weight



	Prod.-No.
ALFRA TML 500	41500

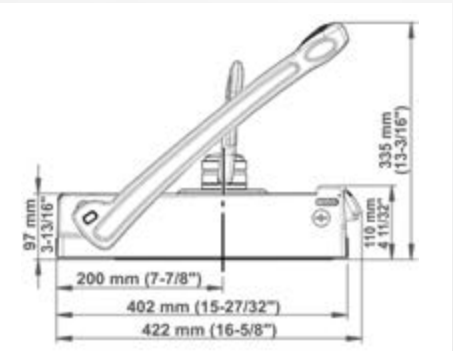
LIFTING MAGNET TML 1000

1. **Only 18.0 kg (40 lbs) dead weight**
2. **Max. load-bearing capacity: 1.000 kg (2,200 lbs) (with 3:1 safety factor)**
3. **360° rotatable and 180° pivotable load swivel**
4. **One-handed operation ('inside' steel beam possible)**

- Up to 1,000 kg (2,200 lbs) load-bearing capacity from a material thickness of 10 mm (3/8") 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; 1/16")
- 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 1000:

- Dead weight: 18.0 kg (40 lbs)
- Breakaway force: › 3,400 kg (7,500 lbs) on 12 mm (1/2") steel S235
- Max. load-bearing capacity: 1,000 kg (2,200 lbs) (with 3:1 safety factor)
- Max. load-bearing capacity during vertical lifts (90° inclination of the load): 300 kg (660 lbs) (from 12 mm; 15/32" on steel S235 with 3:1 safety factor)
- Length: 470 mm (18-1/2") (closed lever), width: 154 mm (6-1/16"), height: 335 mm (13-3/16") (opened lever)
- Magnetic contact area: Length: 387 mm (15-1/4"), width: 92 mm (3-5/8")



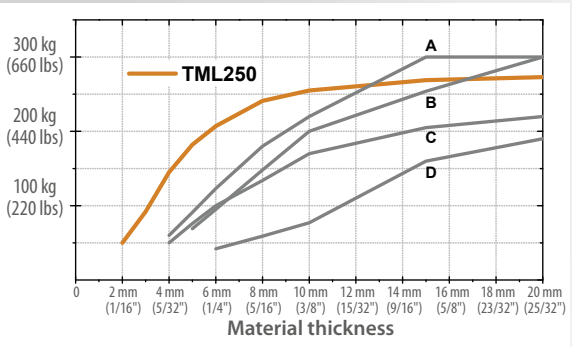
	Prod.-No.
ALFRA TML 1000	41700

LIFTING MAGNET TML 250 F - RIGID EYE BOLT

1. **Only 3.5 kg (7.7 lbs) dead weight**
2. **Max. load-bearing capacity: 250 kg (550 lbs) (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**

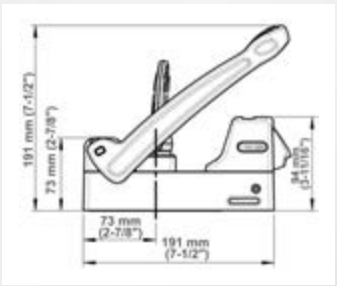
- Up to 250 kg (550 lbs) load-bearing capacity from a material thickness of 10 mm (3/8") and 90 kg (195 lbs) from just 3 mm (1/8") material thickness on steel S235 plus 3:1 safety factor (i.e. the force that leads to the breakaway of the metal sheet must represent triple the maximum holding force)
- 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
- 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 (7.7 lbs)
- Breakaway force: › 750 kg (1,653 lbs) on 10 mm (3/8") steel S235
- Max. load-bearing capacity: 250 kg (550 lbs) (with 3:1 safety factor)
- Length: 240 mm (9-7/16") (closed lever), width: 91 mm (3-9/16"), height: 191 mm (7-1/2") (opened lever)
- Magnetic contact area: length: 135 mm (5-5/16"), width: 65 mm (2-9/16")



Competitors:

A: 300 kg (660 lbs) Permanent magnet; 9 kg (19.8 lbs) Dead weight
B: 300 kg (660 lbs) Permanent magnet; 11 kg (24.2 lbs) Dead weight
C: 250 kg (550 lbs) Permanent magnet; 10 kg (22 lbs) Dead weight
D: 250 kg (550 lbs) Permanent magnet; 10 kg (22 lbs) Dead weight



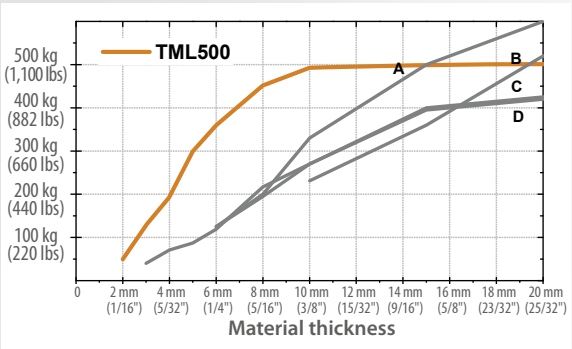
	Prod.-No.
ALFRA TML 250 F	41250.F

LIFTING MAGNET TML 500 F - RIGID EYE BOLT

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**

- Up to 490 kg (1,100 lbs) load-bearing capacity from a material thickness of 10 mm (3/8") and 300 kg (660 lbs) from just 5 mm (3/16") 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; 1/16")
- 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
- 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 (16 lbs)
- Breakaway force: › 1,500 kg (3,300 lbs) on 15 mm; 9/16" steel S235
- 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 (330 lbs) (from 15 mm; 9/16" on S235 with 3:1 safety factor)
- Length: 295 mm (11-5/8")(closed lever), width: 118 mm (4-5/8"), height: 216 mm (8-1/2") (opened lever)
- Magnetic contact area: length: 185 mm (7-1/4"), width: 88 mm (3-7/16")



Competitors:

A: 600 kg (1,320 lbs) Permanent magnet; 22 kg (48.5 lbs) Dead weight

B: 600 kg (1,320 lbs) Permanent magnet; 24 kg (52.9 lbs) Dead weight

C: 500 kg (1,100 lbs) Permanent magnet; 20 kg (44 lbs) Dead weight

D: 500 kg (1,100 lbs) Permanent magnet; 8 kg (17.6 lbs) Dead weight

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

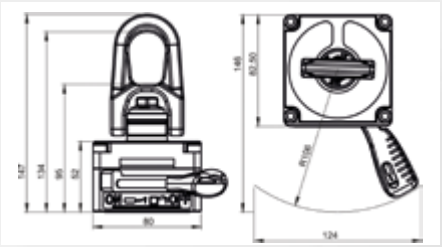
LIFTING MAGNET TML 100

1. **Only 1.7 kg (3.7 lbs) dead weight**
2. **Max. load-bearing capacity: 100 kg (220 lbs) (with 3:1 safety factor)**
3. **360° rotable and 180° pivotable load swivel**
4. **Easy one-handed operation**

- Max. load-bearing capacity of 50 kg (110 lbs) with 3 mm (1/8") (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; 1/32")
- 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 (3.7 lbs)
- Breakaway force: › 300 kg (660 lbs) on 6 mm (1/4") steel S235
- Max. load-bearing capacity during vertical lifts (90° inclination of the load): 30 kg (66 lbs) (from 6 mm ; 1/4" steel S235 with 3:1 safety factor)
- Length: 82.5 mm (3-1/4"); width: 80 mm (3-1/8"); height (load swivel in horizontal position): 85 mm (3-3/8"), height (load swivel in vertical position): 147 mm (5-13/16")



	Prod.-No.
ALFRA TML 100	41100.L

LIFTING MAGNET TML 90 R

R **With prism for pipes and curved surfaces**
Lifts pipes 25 mm (1") to 200 mm (7-7/8") in diameter

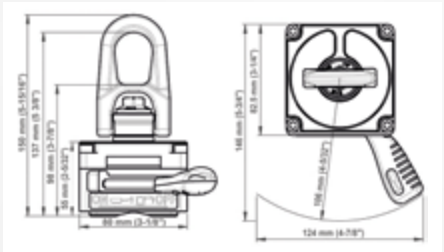
1. **Only 1.8 kg (4 lbs) dead weight**
2. **Max. load-bearing capacity: 90 kg (200 lbs) (with 3:1 safety factor)**
3. **360° rotatable and 180° pivotable load swivel**
4. **Easy one-handed operation**

MADE IN GERMANY

US Patent No. 8350663B1

- Lifts pipes from 25 mm (1") to 200 mm (7-7/8") in diameter
- Outstanding performance on thin-walled materials (operable from just 1 mm; 1/32")
- 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 (4 lbs)
- Breakaway force: › 270 kg (595 lbs) on 6 mm (1/4") 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 (3-1/4"); width: 80 mm (3-1/8");
  height (load swivel in horizontal position): 88 mm (3-7/16")
  height (load swivel in vertical position): 150 mm (5-15/16")



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

LIFTING MAGNET TML 100 F

1. **Only 1.6 kg (3.5 lbs) dead weight**
2. **Max. load-bearing capacity: 100 kg (220 lbs) (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 (110 lbs) with 3 mm (1/8") (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; 1/32")
- 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 (3.5 lbs)
- Breakaway force: › 300 kg (660 lbs) on 6 mm (1/4") steel S235
- Max. load-bearing capacity: 100 kg (220 lbs) (with 3:1 safety factor)
- Length: 82.5 mm (3-1/4"); width: 80 mm (3-1/8"); height: 118 mm (4-5/8")

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

LIFTING MAGNET TML 200

1. **Only 3.2 kg (7 lbs) dead weight**
2. **Max. load-bearing capacity: 200 kg (440 lbs) (with 3:1 safety factor)**
3. **360° rotable and 180° pivotable load swivel**
4. **Easy one-handed operation**

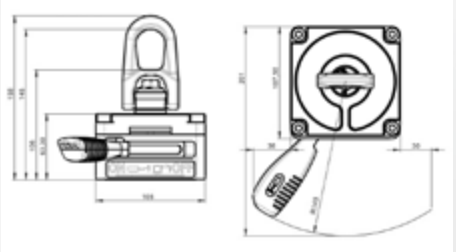
MADE IN GERMANY

US Patent No. 8350663B1

- Max. load-bearing capacity of 60 kg (110 lbs) with 3 mm (1/8") material thickness and 105 kg load-bearing capacity from just 4 mm (plus triple safety factor)
- Outstanding performance on thin-walled materials (operable from just 2 mm; 1/16")
- 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 200:

- Dead weight: 3.2 kg (7 lbs)
- Breakaway force: › 600 kg (1,323 lbs) on 10 mm (3/8") steel S235
- Max. load-bearing capacity during vertical lifts (90° inclination of the load): 60 kg (132 lbs) (from 10 mm ; 3/8" steel S235 with 3:1 safety factor)
- Length: 107.5 mm (4-7/32"); width: 105 mm (4-1/8"); height (load swivel in horizontal position): 97 mm (3-13/16"), height (load swivel in vertical position): 158 mm (6-7/32")



	Prod.-No.
ALFRA TML 200	41200.L

LIFTING MAGNET TML 200 R

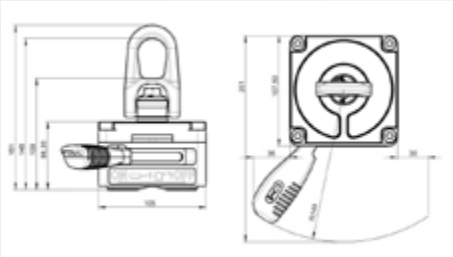
R **With prism for pipes and curved surfaces**
Lifts pipes from 50 mm (2") to 400 mm (15-3/4") in diameter

1. **Only 3.4 kg (7.5 lbs) dead weight**
2. **Max. load-bearing capacity: 200 kg (440 lbs) (with 3:1 safety factor)**
3. **360° rotable and 180° pivotable load swivel**
4. **Easy one-handed operation**

MADE IN GERMANY

US Patent No. 8350663B1

- Lifts pipes from 50 mm (2") to 400 mm (15-3/4") in diameter
- Outstanding performance on thin-walled materials (operable from just 2 mm; 1/16")
- 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



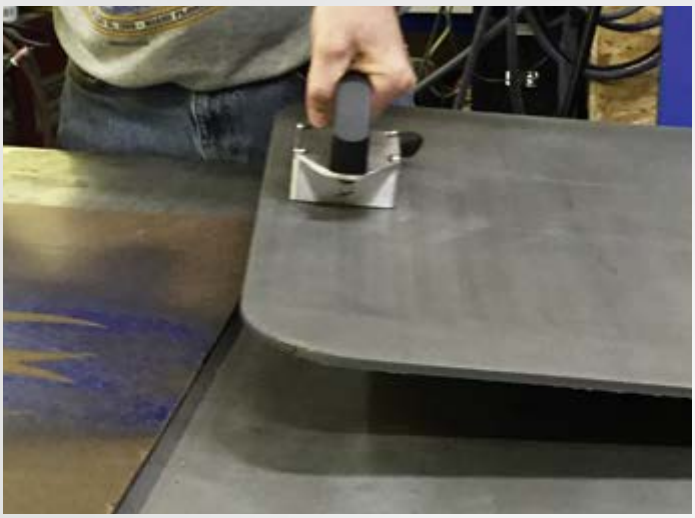
Technical data TML 200 R:

- Dead weight: 3.4 kg (7.5 lbs)
- Breakaway force: › 600 kg (1,323 lbs) on 10 mm (3/8") S235
- Max. load-bearing capacity with round pipes: 20 - 50 % of the load-bearing capacity on flat material (see TML 200), depending on pipe diameter and material thickness
- Length: 107.5 mm (4-7/32"); width: 105 mm (4-1/8"); height (load swivel in horizontal position): 100 mm (4"), height (load swivel in vertical position): 161 mm (6-11/32")

	Prod.-No.
ALFRA TML 200 R	41200.L.R

MANUAL LIFTING MAGNET TMH 50

1. **Only 1.6 kg (3.5 lbs) dead weight**
2. **Large, stable handle**



- Up to 50 kg (110 lbs) load-bearing capacity on a steel sheet S235 with a thickness of just 3 mm (1/8")
- Protects hands and fingers from hot and sharp-edged steel
- Indispensable for anyone who, e.g, has to transport welding-parts from A to B without a lifting device. (Max. temperature 60° C; 140°F)
- 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 (3.5 lbs)
- Breakaway force: › 300 kg (660 lbs) on 6 mm (1/4") steel S235 (without adapter plate)
- Max. load-bearing capacity on flat material: 50 kg (110 lbs) (on 3 mm; 1/8" steel S235)
- Max. load-bearing capacity during vertical lifts: 35 kg (77 lbs) (on 3 mm; 1/8" steel S235)
- Length: 126 mm (4-15/16"); width: 80 mm (3-1/8"); height: 100 mm (3-15/16") (incl. lever: length 190 mm; 7-1/2", width 124 mm; 4-7/8")

	Prod.-No.
ALFRA TMH 50	41100.H

MANUAL LIFTING MAGNET TMH 50 R

1. **Only 1.6 kg (3.5 lbs) dead weight**
2. **Large, stable handle**

R **With prism for pipes and curved surfaces**
Lifts pipes from 25 mm (1") to 200 mm (7-7/8") in diameter

- Lifts pipes from 25 mm (1") to 200 mm (7-7/8") 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°C; 140°F)
- 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 (3.5 lbs)
- Breakaway force: › 270 kg (660 lbs) on 6 mm; 1/4" steel S235
- 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 (4-15/16"); width: 80 mm (3-1/8"); height: 100 mm (3-15/16") (incl. lever: length 190 mm; 7-1/2", width 124 mm; 4-7/8")

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

LIFTING MAGNET TML 400 R

R **With prism for pipes and curved surfaces**
Lifts pipes from 50 mm (2") to 400 mm (15-3/4") in diameter

1. **Only 8.2 kg (18 lbs) dead weight**
2. **Max. load-bearing capacity: 400 kg (880 lbs) (with 3:1 safety factor)**
3. **360° rotatable and 180° pivotable load swivel**
4. **Easy one-handed operation**

- Lifts pipes from 50 mm (2") to 400 mm (15-3/4") in diameter
- Outstanding performance on thin-walled materials (operable from just 2 mm; 1/16")
- 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 400 R:
- Dead weight: 8.2 kg (18 lbs)
- Breakaway force: › 1,200 kg (2,650 lbs) on 15 mm (9/16") S235
- Max. load-bearing capacity with round pipes: 20 - 50 % of the load-bearing capacity on flat material (see TML 500), depending on pipe diameter and material thickness
- Length: 295 mm (11-5/8") (closed lever); width: 118 mm (4-5/8"); height: 216 mm (8-1/2") (open lever)

	Prod.-No.
ALFRA TML 400 R	41400.R

MAGNETIC CLAMP TMC 70

Our "little one" with a wide range of applications is the perfect magnetic base for your projects

1. **Only 0.29 kg (10.2 oz) dead weight**
2. **Up to 70 kg (154 lbs) load-bearing capacity (vertically)**
3. **Easy one-handed operation**

MAGNETIC SYSTEMS PATENTED US Patent No. 8350663B1

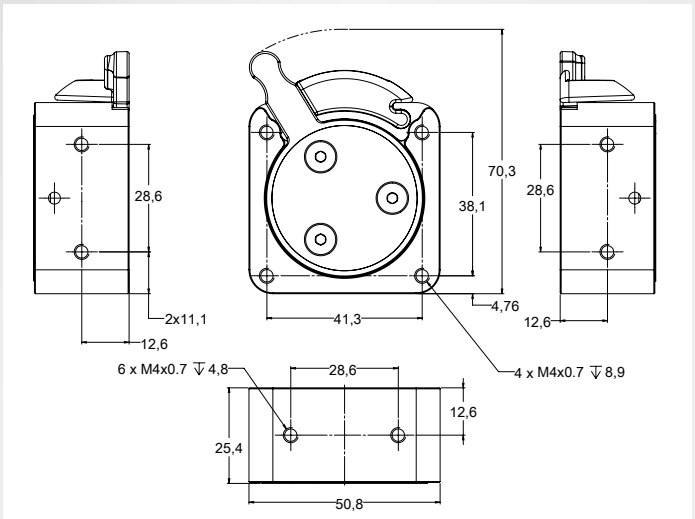
The design of the TMC 70 has one main purpose: to make the magnet a valuable helper for a variety of tasks in your business. For example for special challenges in welding. Among others, the TMC 70 is showing full effort when it comes to fixing ferromagnetic metal sheets and panels – to ensure flawless welding seams. Furthermore the compact magnet is an assistant if you have to weld at an angle or if you have to fix particulary filigree metal parts, which alternatively would have to be fastened with clamps.

Attachment holes on top and three sides are providing, that the TMC 70 is nearly unlimited customizable. The flat design is an advantage, too.

Due to a height of only 25 mm, the magnet is perfectly suitable for the easy integration and attachment of accessories. Like all Alfra-magnets the TMC 70 is characterized by the patented magnetic technology, which is generating the magnetic field in an ideal way. The result: exceptional holding power even on thinwalled materials.

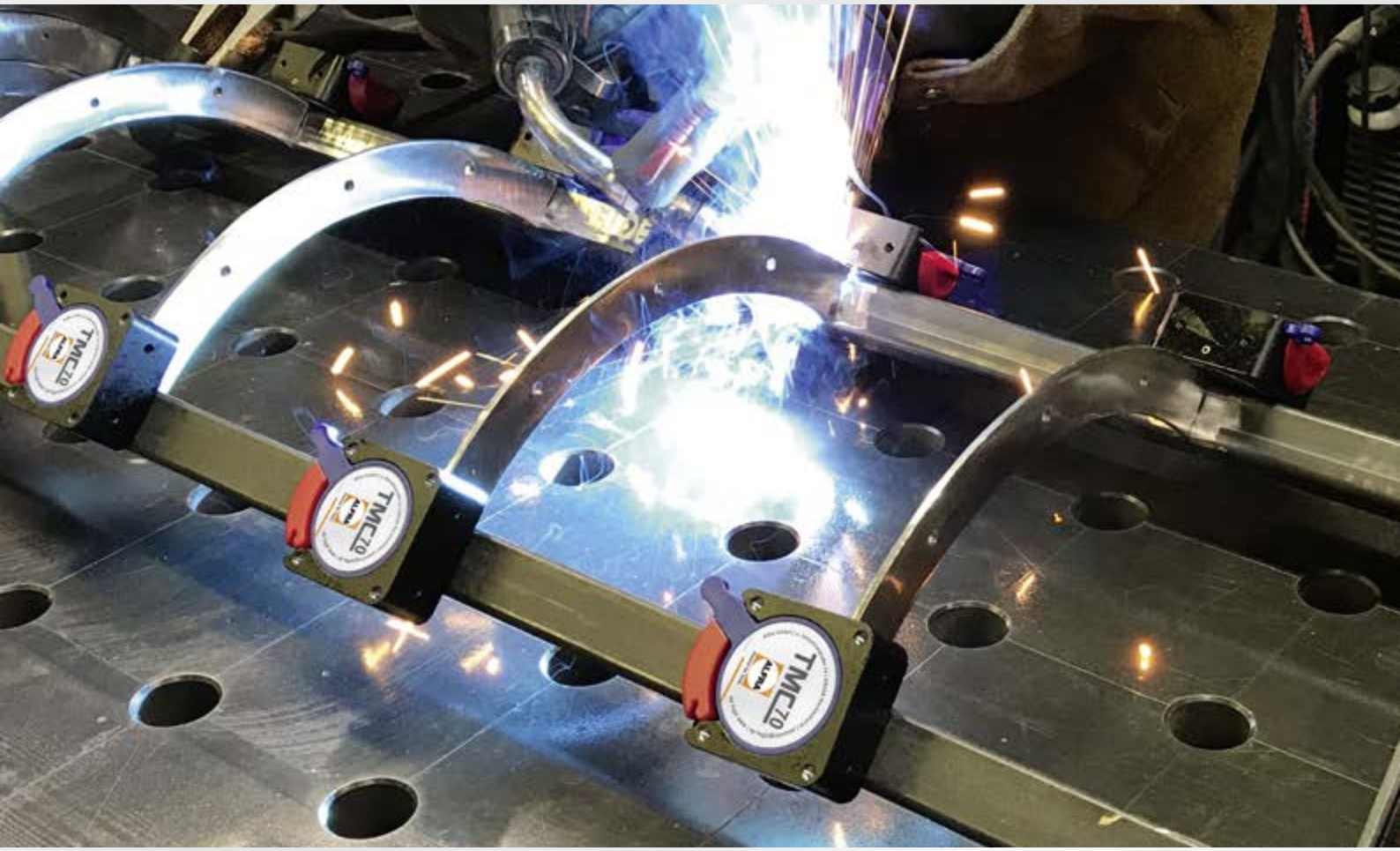
From a material thickness of 3 mm on steel the magnet has a holding force of 60 kg. The smart construction of the activation lever ensures that you are able to use the TMC 70 from three sides, even in narrow angles. The security mechanism is keeping the magnet reliably in switched-on position. Additionally the smallest of our positioning magnets is especially lightweight and durable because oft he aluminum case.

Technical data TMC 70:
- Dead weight: 0.29 kg (10.2 oz)
- Breakaway force: 72 kg (158 lbs) on 6 mm (1/4") steel S235
- Length: 69 mm (2-3/4"); width: 50 mm (2"); height: 25 mm (1")



	Prod.-No.
ALFRA TMC 70	41070

MAGNETIC CLAMP TMC 70



Instead of complicated clamping: The TMC 70 for easy fixing of metal parts for welding work

Application example 1: As a guide rail for welding

Application example 2: Welding of angles

MAGNETIC CLAMP TMC 300

Our "little one" with a wide range of applications is the perfect magnetic base for your projects

1. **Only 1 kg (2.2 lbs) dead weight**
2. **Up to 300 kg (660 lbs) load-bearing capacity (vertically)**
3. **Easy one-handed operation**

MAGNETIC SYSTEMS PATENTED
US Patent No. 8350663B1

- Excellent holding force up to 300 kg (660 lbs) – even on a steel plate with 6 mm (1/4") 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 up to approx. 15 mm to the outside of the magnet (9/16") possible
- Wear-resistant magnetic contact area made of hardened steel with TiN-coating preventing damages and guaranteeing a long lifetime
- Exceptional shear force for better hold, especially during vertical applications

Technical data TMC 300:
- Dead weight: 1 kg (2.2 lbs)
- Breakaway force: › 300 kg (660 lbs) on 6 mm (1/4") steel S235
- Length: 82.5 mm (3-1/4"); width: 80 mm (3-1/8"); height: 32.5 mm (1-1/4")

	Prod.-No.
ALFRA TMC 300	41100

MAGNETIC CLAMP TMC 300 R

R **With prism for pipes and curved surfaces**
Lifts pipes from 25 mm (1") to 200 mm (7-7/8") in diameter

1. **Only 1.1 kg (2.4 lbs) dead weight**
2. **Max. Breakaway force: 300 kg (660 lbs)**
3. **Easy one-handed operation**

MADE IN GERMANY

US Patent No. 8350663B1

- Excellent holding force on pipes from 25 mm (1") to 200 mm (7-7/8") in diameter
- Outstanding performance on thin-walled materials (operable from just 1 mm; 1/32")
- The specially aligned magnetic field (patented) makes up to approx. 15 mm to the outside of the magnet (9/16") possible
- Wear-resistant magnetic contact area made of hardened steel with TiN-coating preventing damages and guaranteeing a long lifetime

Technical data TMC 300 R:
- Dead weight: 1.1 kg (2.4 lbs)
- Breakaway force: › 300 kg (660 lbs) on 6 mm (1/4") steel S235
- Max. load-bearing capacity with round pipes: 20 - 50 % of the load-bearing capacity on flat material (see TMC 300), depending on pipe diameter and material thickness
- Length: 82.5 mm (3-1/4"); width: 80 mm (3-1/8"); height: 32.5 mm (1-1/4")

	Prod.-No.
ALFRA TMC 300 R	41100.R

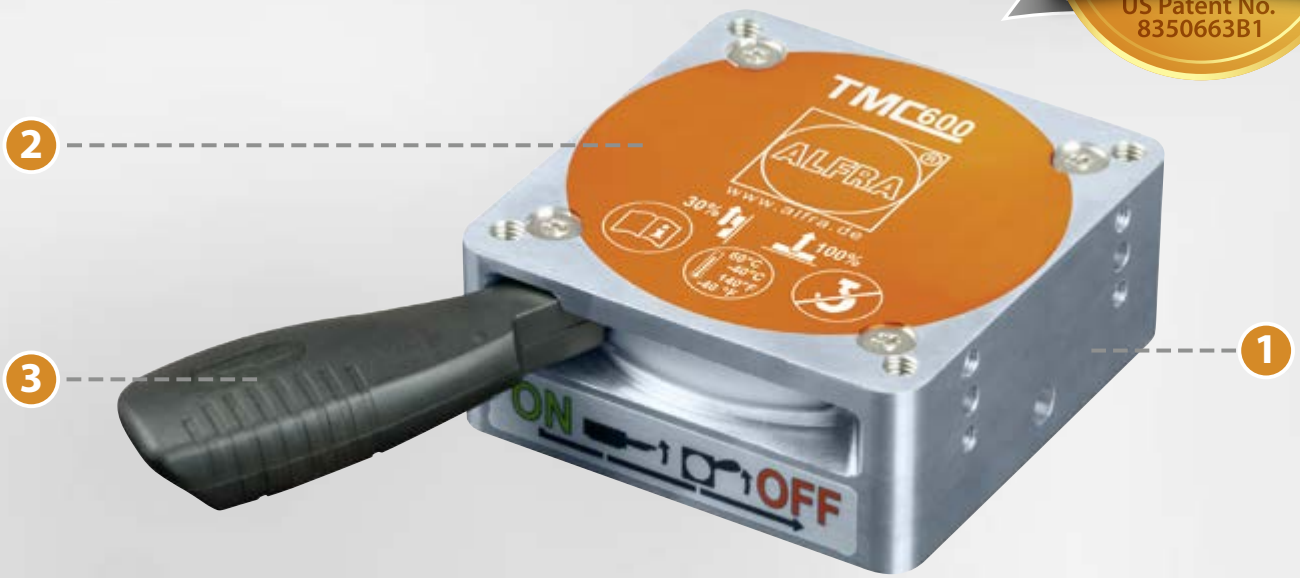
MAGNETIC CLAMP TMC 600

One magnet–endless possibilities

The TMC 600 is configurable in many different ways to suit ‚your' application. Connection threads on the top and the external sides provide maximum versatility.

1. **Only 2.6 kg (5.7 lbs) dead weight**
2. **Up to 600 kg (1,323 lbs) load-bearing capacity (vertically)**
3. **Easy one-handed operation**

MAGNETIC SYSTEMS PATENTED
US Patent No. 8350663B1



- Excellent holding force up to 600 kg (1,323 lbs) – even on a steel plate with 6 mm (1/4") 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 600 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 up to approx. 15 mm to the outside of the magnet (9/16") possible
- Wear-resistant magnetic contact area made of hardened steel with TiN-coating preventing damages and guaranteeing a long lifetime
- Exceptional shear force for better hold, especially during vertical applications

Technical data TMC 600:
- Dead weight: 2.6 kg (5.7 lbs)
- Breakaway force: › 600 kg (1,323 lbs) on 10 mm (3/8") steel S235
- Length: 108 mm (4-1/4"); width: 105 mm (4-1/8"); height: 44 mm (1-3/4")

	Prod.-No.
ALFRA TMC 600	41200

MAGNETIC CLAMP 600 R

R **With prism for pipes and curved surfaces**
Lifts pipes from 50 mm (2") to 300 mm (11-13/16") in diameter

1. **Only 2.7 kg (6 lbs) dead weight**
2. **Max. Breakaway force: 600 kg (1,323 lbs)**
3. **Easy one-handed operation**

- Excellent holding force on pipes from 50 mm (2") to 300 mm (11-13/16") in diameter
- Outstanding performance on thin-walled materials (operable from just 1 mm; 1/32")
- The specially aligned magnetic field (patented) makes up to approx. 15 mm to the outside of the magnet (9/16") possible
- Wear-resistant magnetic contact area made of hardened steel with TiN-coating preventing damages and guaranteeing a long lifetime

Technical data TMC 600 R:
- Dead weight: 2.7 kg (6 lbs)
- Breakaway force: › 600 kg (1,323 lbs) on 10 mm (3/8") steel S235
- Max. load-bearing capacity with round pipes: 20 - 50 % of the load-bearing capacity on flat material (see TMC 600), depending on pipe diameter and material thickness
- Length: 108 mm (4-1/4"); width: 105 mm (4-1/8"); height: 46 mm (1-13/16")

	Prod.-No.
ALFRA TML 600 R	41200.R

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 (10.4 lbs) 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 (660 lbs), operable from just 1 mm (1/32")**
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

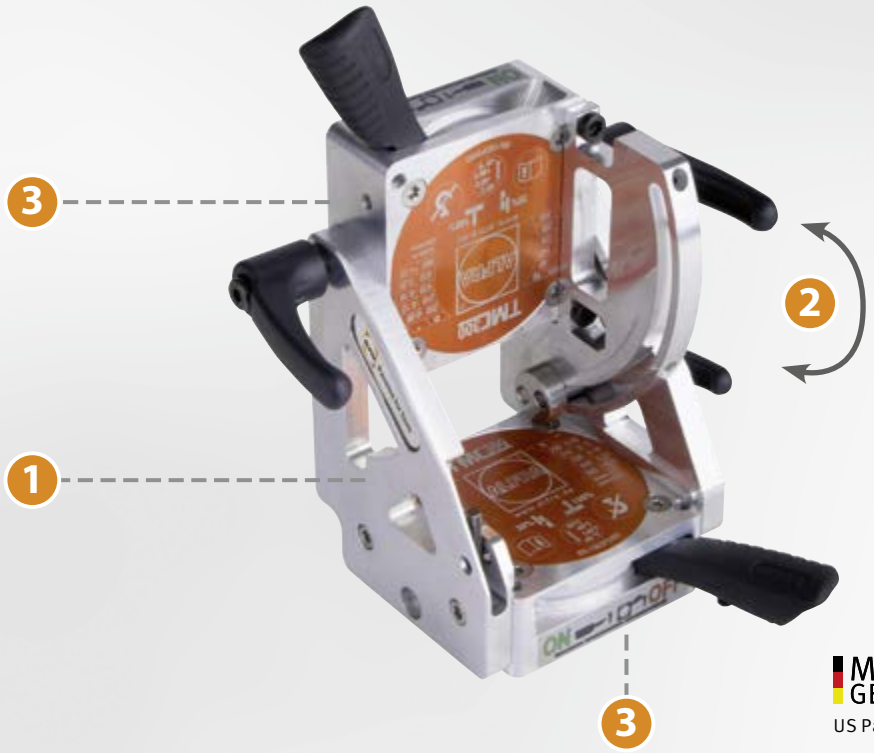
Technical data TMA 600 F XL:

- Dead weight: 4.7 kg (10.4 lbs)
- Breakaway force: › 300 kg (660 lbs) per TMC 300 on 6 mm (1/4") steel S235
- Width: max. 145 mm (5-11/16") (without stop: 103 mm; 4-1/16")
- Height: 355 mm (14")
- Length: 355 mm (14")

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

ADJUSTABLE WELDING ANGLE TMA 600

1. **Only 2.7 kg (6 lbs) 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 (660 lbs) (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 (660 lbs) per TMC 300 on 6 mm (1/4") steel S235
- Shear force: up to 100 kg (220 lbs)
- Dead weight: 2.7 kg (6 lbs)
- Length: 162 mm (6-3/8"); width: 124 mm (4-7/8"); height: 223 mm (8-3/4")

	Prod.-No.
ALFRA TMA 600	41100.A


"Compact, lightweight and always 100 % adhesive reliability - even on thin sheet metals. The new SP-V is a must on every construction site!"
Min. material thickness: only 3 mm (1/8")
SP-V
SP-V

ALFRA – UNIVERSAL MAGNETIC DRILL STAND SP-V

Through variable mountings, different drilling machines can be used. Even cordless drill machines can be used as a cordless combination with the permanent magnetic stand for a virtually unlimited range of applications – from 3 mm thickness!

Can be used with a permanent magnet from 3 mm material thickness

MADE IN GERMANY

US Patent No. 8350663B1

SP-V	
Twist drill	Ø depending on the used drill
Arbor	Ø 43 mm Euro standard, Ø 48,6 mm, Ø 61,7 mm
Stroke	105 mm
Height adjustment	80 mm
Magnetic adhesion force	17.000 N
Tool-Force (10 mm S235)	2.800 N
Tool force (6 mm S235)	2.300 N
Magnetic base	72 x 190 mm
Weight	6,8 kg
Magnet	
TiN-coating	✔
Performance and weight optimisation	✔
Made in Germany	✔
Scope of delivery	
• Universal Magnetic Drill Stand SP-V • Carrying case • Operating instructions	

	Prod.-No.
ALFRA universal magnetic drill stands SP-V	18343

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 (5 lbs) dead weight**
2. **Long, stable lever arm**
3. **Solid support for perfect pressing**
4. **300 kg (660 lbs) 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 (440 lbs) on 3 mm (1/8") steel S235
- Breakaway force: › 300 kg (660 lbs) on 6 mm (1/4") steel S235
- Height (vertical): 505 mm (19-7/8")
- Height (horizontal): 164 mm (6-1/2")
- Width (outside edge lever arm to bottom edge support): 79 mm (3-1/8")
- Width: 139 mm (7-19/32")
- Depth: 80 mm (3-5/32")
- Dead weight: 2.27 kg (5 lbs)

	Prod.-No.
ALFRA Mag-Pry®	41100.pry

MAGNETIC SWEEPER

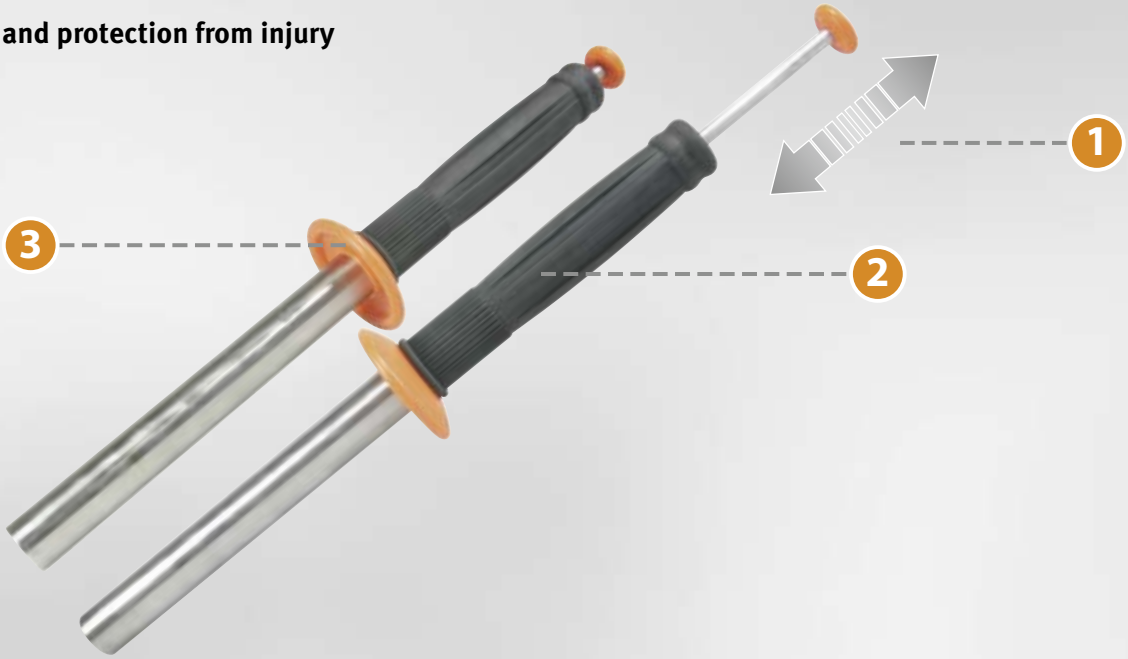
1. **Adjustable telescopic handle**
2. **Max. capacity: 9 kg (20 lbs)**

- For quick and easy cleaning of floors in different working areas
- Pull capacity up to 9 kg (20 lbs)
- Easy removal of the collected metal parts thanks to easy release mechanism on the handle
- Sweeping width: 400 mm (16")
- Telescopic handle adjustable from 750 mm (29-1/2") to 1050 mm (41-5/16")

	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 (16")

	Prod.-No.
ALFRA – Magnetic Swarf Remover	18654

ALFRA – ROUND SLING

Textile sling for lifting and moving loads

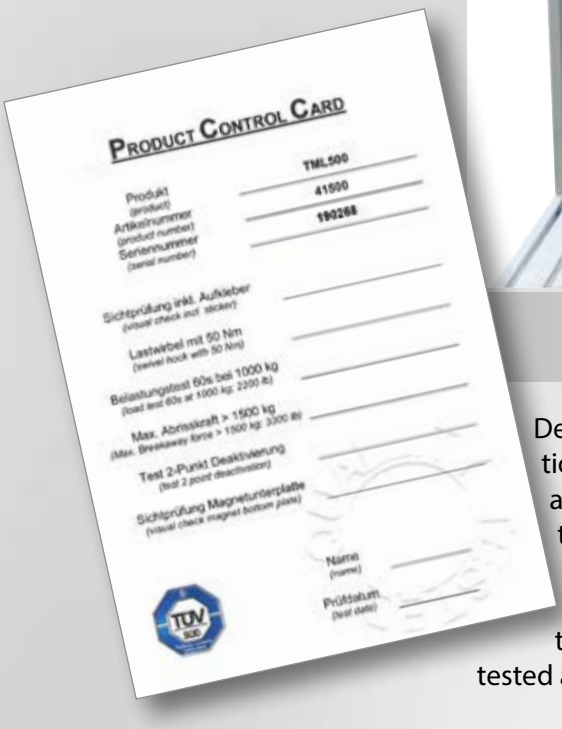
Round slings comply with Euro standard 1492-2 and are made of tear-resistant polyester (PES)-a high-tensile multifilament yarn

Suitable for loads up to 1,000 kg (2,200 lbs)

- 100 % polyester
- Complies with EN 1492-2
- Safety factor 7:1
- GS symbol
- Processed with great care
- Reliable and resistant to abrasion
- Excellent gliding properties in the noose

ROUND SLING			
Prod.-No.	load capacity	Length	Effective length
189414110	1,000 kg (2,200 lbs)	1.0 m (39-3/8")	0.5 m (19-11/16")
189414154	1,000 kg (2,200 lbs)	2.0 m (78-3/4")	1.0 m (39-3/8")

SERVICE AND INSPECTIONS CARRIED OUT BY THE MANUFACTURER IN ACCORDANCE WITH LEGAL REQUIREMENTS

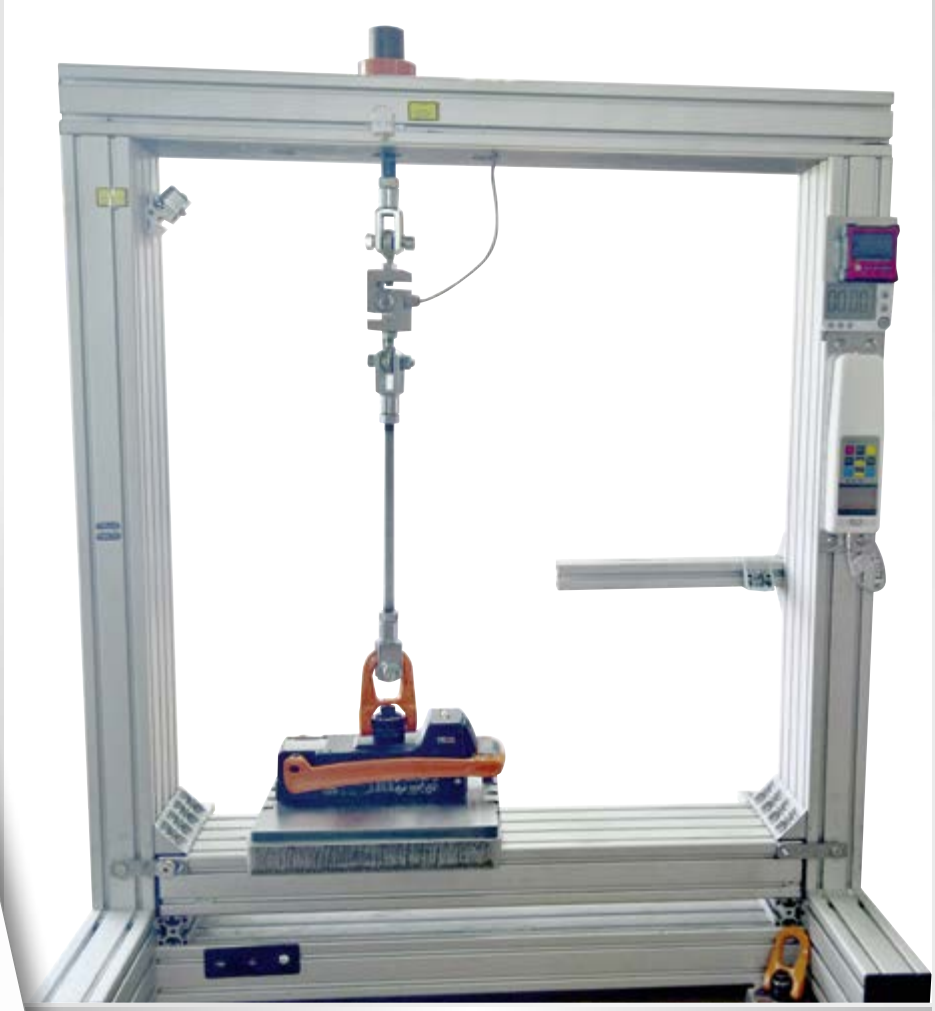

PRODUCT CONTROL CARD

Produkt (product) TML500
Artikelnummer (product number) 41500
Seriennummer (serial number) 190288

Sichtprüfung inkl. Aufkleber (visual check incl. sticker)
Lastwirbel mit 50 Nm (swivel hook with 50 Nm)
Belastungstest 60s bei 1000 kg (load test 60s at 1000 kg; 2200 lb)
Max. Abrisskraft > 1500 kg (Max. Breakaway force > 1500 kg; 3300 lb)
Test 2-Punkt Deaktivierung (test 2 point deactivation)
Sichtprüfung Magnetunterplatte (visual check magnet bottom plate)

Name (name)
Prüfdatum (test date)

TÜV SÜD



TÜV-CERTIFIED TEST STATION IN OUR MAGNET PRODUCTION

Despite utmost care in production and application, magnets are subject to constant wear through use and external influences. Therefore, they must not only be maintained regularly, but also tested at certain intervals.

In chapter 2.8 on "Operating load handling attachments in hoisting operations", the trade association rules BGR 500 stipulate that load handling attachments must be assessed once a year by an expert. (More information on this topic can also be found under point 11 in our FAQs on page 44).

In order to be able to support you in the implementation of this standard in a legally secure, fast and economically sensible way, we are offering you the "Recurring inspection" at first hand.

Our competent design engineers will evaluate your magnet and repair it if necessary.
Our expert advisors will be happy to arrange an appointment for you. You are also welcome to write to us at:
TML-Test@alfra.de

INTERESTING FACTS ABOUT TML/TMC MAGNETS
FREQUENTLY ASKED QUESTIONS

1. What is the unique selling point of the Alfra magnets?
Whether it is a Lifting Magnet, Positioning Magnet or a Welding Angle-magnets made by ALFRA are distinguishable due to their user-friendly 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 light-weight: 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?
A clearly arranged graphic 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 (195 lbs) of steel at a thickness of 2 mm (1/16") and 240 kg (530 lbs) of steel at a thickness of 8 mm (5/16"). A safety factor of 3:1 is always included. That means that, in fact, the magnet could lift 150 kg (330 lbs) of steel at a thickness of 2 mm (1/16") and 720 kg (1,590 lbs) of steel at a thickness of 8 mm (5/16") without tearing off.
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, 400 R, 500 and 1000?
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 user-oriented design, the stable activation lever of the ALFRA TML magnets, TML 250, 400 R, 500 and 1000 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. Another advantage: the regrinding of the lower plates required with conventional magnets is no longer necessary with the Alfra models of the TML and TMC series.

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 (5/32") 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.

INTERESTING FACTS ABOUT TML/TMC MAGNETS FREQUENTLY ASKED QUESTIONS

9. What is the impact of extreme temperature on TML/TMC magnets?
Even high temperatures of up to 60°C (140°F) have no impact on the performance of our TML and TMC magnets. At temperatures above 60°C (140°F) 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 (-238°F), 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 (-22°F). 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 (-22°F) maximum and TML magnets up to -10°C (14°F) maximum.

10. Why do TML and TMC magnets have different operating temperatures?
The Lifting Magnets TML 250, 400 R, 500 and 1000 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 (14°F). TML and TMC models without a safety tab and variable damper may still operate up to -30°C (-22°F).

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 400 R, 500 and 1000 are excellent devices 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.

Do you like animated pictures?
Discover exciting application videos on the Alfra homepage at www.alfra.de

WEB

or visit our **Youtube-Channel „alfratools“.**
https://www.youtube.com/user/alfratools

VIDEO

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

Your Alfra GmbH

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APPLICATION SOLUTIONS
CONTROL CABINET AND CONTROL ENGINEERING

APPLICATION SOLUTIONS
STEEL AND METAL CONSTRUCTION

Alfra GmbH | 2. Industriestraße 10 | D-68766 Hockenheim | www.alfra.de | export@alfra.de
Phone: +49 (0) 62 05/30 51 - 0 | Fax: +49 (0) 62 05/30 51 - 135

MADE IN GERMANY

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