

## THL 100 Permanent lifting magnet

### 1. For whom is this user manual?

All personnel at the factory who are responsible for the operation, maintenance and care of this device must be appropriately qualified and carefully read and understand the user manual.

This is important for both the functional safety of the device and the personal safety of the operator.

#### 1.1. Information:

This user manual is part of the delivered product. All personnel must be able to read and understand this user manual. Meusburger may at any time make design changes without changing this user manual.

#### Danger:

To protect the operator from harm these rules must be followed.



#### Warning:

To prevent damage to the device these rules must be followed.



#### Note:

This symbol indicates important instructions for a proper handling of the device. The failure to comply with these instructions can cause device malfunction.



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#### Please contact the dealer or manufacturer in case of device malfunction:

The device number is specified on every device. Under no circumstances should the labels be removed. For any queries to Meusburger please provide the device specifications from the label.

### 2. Transport and Handling:

#### 2.1. Packaging:

The device is packed in a cardboard box/crate and is supplied on a pallet if necessary. This cardboard box/crate contains all components.



**ATTENTION: please do not dispose of the packaging!**

#### 2.2. Transportation:

The cardboard box can be transported manually or on a pallet by a forklift. For handling the device please use a hook and a hoist.

**IMPORTANT: Please handle the cardboard box carefully!**

#### 2.3. Storage:

During the transport and storage the device must not be exposed to temperatures that are below -15°C or above +50°C. The humidity in the storage location should be 30 % to 80 %.

### 3. Technical description of the device:

#### 3.1. Description of device:

##### Application:

The THL 100 lifting magnets by Meusburger are very versatile and easy to use. They are suitable for the lifting of both flat and round pieces.

##### Version:

The THL 100 lifting magnets require little maintenance and their magnetic force will last for life. Thanks to the use of NEODYMIUM magnetic material the THL 100 lifting magnets have an enormous lifting capacity. Special attention was paid to the safety aspects. Therefore the THL 100 lifting magnets have a smooth ON and OFF circuit with power-off control.

#### 3.2. Technical specifications:

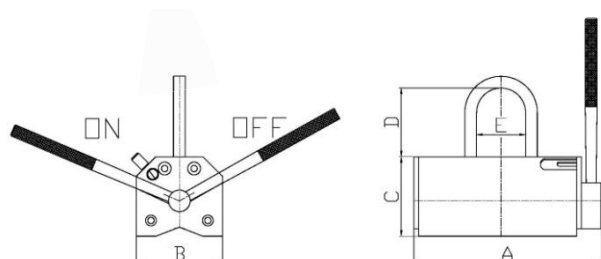
Device type: THL 100

Magnet clamping system: with permanent Neodymium magnets

Poles: for round and flat pieces (see table)

Safety factor: 3:1

Manufacturing according to the standard 13155



### 3.3. Dimensions:

Dimensions in mm										
TYPE	Rated load-carrying capacity [kg] Flat pieces	Rated load-carrying capacity [kg] Round pieces	Minimum thickness Force 100 %	Minimum/Maximum Ø	A	B	C	D	E	Wt. (kg)
THL 100/100	100	50	15	30-200	125	68	70	54	40	4
THL 100/ 250	250	125	25	30-180	191	98	87	70	50	9.5
THL 100/ 500	500	215	30	30-180	255	98	87	70	50	13
THL 100/1000	1000	450	50	200-600	321	140	110	105	65	31.5

## 4. Safety:

### 4.1. Safety of operating personnel:

Never use the lifting magnet until you have read and understood the user manual.

#### Warning:

- » People with pacemakers must keep a distance of **2 metres** during the magnetisation and demagnetisation of a lifting magnet.
  - » The magnet field exerts a high force on any steel object within 5 mm of the clamping surface. Never hold an item made of steel near the clamping surface because of risk of injury.
  - » Before lifting make sure that the shields have been properly mounted.
  - » Before lifting check the magnetic characteristics of the workpieces. Some types of steel are non-magnetic others are weakly magnetic again.
  - » Always make sure that the clamping is stable enough and does not exceed the capacity of the device.
  - » Always wear safety glasses.
  - » Never shut off the machine lock or other safety systems.
- It is absolutely forbidden to operate the system when a person is situated on the system.**



- » Never transport loads over the heads of or in the proximity of people.
- » Never use the magnets as an aid for lifting, supporting, or transporting people.
- » Warn bystanders when the lifting process begins.
- » Always use a lifting hook with a safety device.
- » Never exceed the maximum permissible weight and the maximum permissible dimensions.
- » Never use a damaged or poorly functioning magnet.
- » Only turn the lifting magnet on when it is on the load.
- » Only turn the lifting magnet off when the load is set down on stable ground.
- » Never lift more than one workpiece at a time.
- » Never leave a lifted load unattended.
- » The temperature of the load and/or the surroundings must not exceed 80°C.
- » Never transport dangerous goods (explosives, radioactive material etc.).
- » Never lift parts which have been loaded with additional mobile loads.
- » Never use the magnets in explosive environments.
- » Never use lifting magnets to lift or transport people.
- » Never use lifting magnets to lift hazardous goods.



### 4.2. Safety precautions for items:

The lifting magnets have a strong magnetic field concentrated on the clamping surface. Magnetic field sensitive devices must not be brought near a magnetised lifting magnet. For example: magnetic storage devices (memory cards, USB flash drives), watches, smartphones and so on.



**Never use a damaged and/or incomplete lifting magnet!**

### 4.3. Danger & operation:

- » Before putting into operation comply with all points of the user manual in detail.
- » People with pacemakers (keep a distance of at least 2 m) or other medical devices may use the magnets only after consulting a specialist.
- » Never remove the warning signs and/or instruction signs from the magnet.
- » Always use safety glasses, gloves, shoes, and helmet.
- » Never go under the load.

### 4.4. Determination of the maximum load-carrying capacity:

THL 100/100 = 100 kg  
 THL 100/250 = 250 kg  
 THL 100/500 = 500 kg  
 THL 100/1000 = 1000 kg

In practice the maximum possible load-carrying capacity depends on the transported good itself and the environmental conditions:

- » Magnetisability of material
- » Temperature of material
- » Cleanliness of transported good
- » Flatness of the working surface for the magnet
- » Shape and dimension of transported good
- » Acceleration of transported good
- » Air gap between transported good and pole surface of magnet

The specified load-carrying capacity which typifies the maximum permissible load must not be exceeded! The information applies for horizontal pole surfaces unless otherwise stated. To achieve the full magnetic force the complete pole surface must have direct contact with the load. Non-ferromagnetic material cannot be transported with this lifting magnet! These include not only plastics but also all non-ferrous metals

and stainless steel.

The load-carrying capacity can be reduced through:

- » Air gaps between load and magnet caused by: rough surface, paper, varnish, damages, burrs both on the load and the magnet.
- » Low thickness of load: the thinner the load the lower the load-carrying capacity.
- » Length and width of the load. Long, wide parts may bow under load whereby an air gap is formed.
- » Small contact surface between the pole surfaces and the load.
- » During the transport of the load the magnet must be exactly horizontally positioned.

**Never exceed the maximum weight and/or the maximum dimensions according to the material thicknesses table on the following page. Never set the magnet on a large hole or a hole in the workpiece. The workpiece must cover both pole pieces as much as possible and to the same extent.**



The values specified in the table below apply for steel St27 (S 235 JR). For other materials the load-carrying capacity is reduced in accordance with the percentages below.

#### DANGEROUS APPLICATIONS:

**Never lift more than one workpiece simultaneously**  
**Never lift a load at the narrowest side.**  
**Never put the lifting magnets with the long side in the longitudinal direction of the load.**



## 5. Service:

Before using the lifting magnet please first read the safety regulations.

- » Before each use check the condition of the magnet. Clean the pole pieces of the magnet and the contact surface of the workpiece. Remove possible burrs/ unevenness using a file.
- » Place the magnet on the workpiece and position so that it remains horizontal during the lifting process (determine the centre of gravity of the workpiece as well as possible).
- » Grasp the lever and turn the magnet on. For this purpose

turn the handle 135° until it is locked through the safety device in the 'ON' (magnetisation) position. Check the locking position and only then release the lever.

- » Lift the load only by a few cm and push strongly against it to check if good stability is given. Never go under the load!!
- » Lead the load by holding the corners. Avoid bumping, swinging, and rattling. Never go under the load! Hold the load in a horizontal position!
- » Place the load on a perfectly stable surface. Grip the gear lever and unlock the safety device. Turn the magnet off by leading the lever back to the start position to the stop. Only then let the lever go.

**Never turn the lifting magnet on or off if it stands on a very thin or non-magnetic workpiece or is hanging in the air. Never let the lever go before it is locked. Attention! Light workpieces can stick even after turning off the magnet!**

## 6. Maintenance and Inspection:

#### Before each use:

Check all the magnets visually. Clean the pole pieces well and if necessary remove burrs and unevenness using a file. Do not use the magnet if you find defects. Check the proper function of the gear lever and the locking system.

#### Weekly:

Check the entire magnet for deformation, cracks, and other defects. If the shackle is bent or more than 7 % worn it must be replaced. Check existence and readability of label. Check the condition of the pole pieces. If these are defective they must be reground by the supplier. Finally check the load-carrying capacity.

#### Yearly:

At least once a year have your supplier or an authorised representative check the load-carrying capacity.

Material	Maximum load-carrying capacity for different materials				
		THL 100/100	THL 100/250	THL 100/500	THL 100/1000
	(%)	(kg)	(kg)	(kg)	(kg)
Steel St37 (S 235 JR)	100	100	250	500	1000
Steel A 50-2 (St 52)	96	96	240	480	960
Cast steel	90	90	190	450	900
Stainless steel 430F	50	50	150	250	500
Cast iron	45	45	135	225	450
Nickel	10	10	30	50	100
Stainless steel 304	0	0	0	0	0

**PERMISSIBLE ADHESIVE FORCE FOR FLAT AND ROUND PIECES (for ST37)**

The minimum sheet metal thickness specified in the table must not be fallen short of.

Material thickness (mm)		Surface quality									
		Clean and flat ground surface Air gap < 0.1 mm			Rusty/hot/rolled surface Air gap 0.1–0.3 mm			Irregular and rough surface Air gap 0.3–0.5 mm			Very rough surface
		Max. dim. of sheets LxW (mm)	Maximum weight (kg) for sheet dimensions stated below		Max. dim. of sheets LxW (mm)	Maximum weight (kg) for sheet dimensions stated below		Max. dim. of sheets LxW (mm)	Maximum weight (kg) for sheet dimensions stated below		
THL 100/100	>=25	/	L > 200 W > 200	L > 100 W > 70	/	L > 200 W > 200	L > 100 W > 70	/	L > 200 W > 200	L > 100 W > 70	
		10	1250x600	100	85	800x600	60	55	650x600	50	45
		6	1250x600	80	65	1000x600	45	36	800x600	30	25
		4	1250x600	40	30	1000x600	30	35	800x600	25	18
		2	1000x600	28	12	1000x600	20	10	800x600	15	8
	Ø 30–200	Lmax. 3500	50		Lmax. 3000	40		Lmax. 2500	30		
THL 100/250	>=25	/	L > 300 W > 300	L > 100 W > 145	/	L > 300 W > 300	L > 100 W > 145	/	L > 300 W > 300	L > 100 W > 145	
		15	1800x1000	250	250	1300x1000	200	170	1000x800	110	100
		10	2000x1000	240	160	1700x1000	180	130	1100x1000	95	90
		6	2000x1000	160	90	1700x1000	130	70	1300x1000	85	60
		4	1600x1000	95	40	1400x1000	80	30	1150x1000	60	25
	Ø 30–180	Lmax. 3500	125		Lmax. 3000	100		Lmax. 2500	80		
THL 100/500	>=30	/	L > 400 W > 400	L > 110 W > 240	/	L > 400 W > 400	L > 110 W > 240	/	L > 400 W > 400	L > 110 W > 240	
		20	1800x1500	500	450	1800x1500	380	370	1400x1000	255	250
		15	2000x1500	425	365	2250x1500	320	290	1600x1000	220	200
		10	2000x1500	400	235	2000x1500	300	195	2000x1000	205	150
		8	2000x1500	265	110	2000x1500	220	95	2000x1000	165	80
	6	2000x1500	200	85	2000x1500	160	65	2000x1000	140	65	
Ø 30–180	Lmax. 4000	215		Lmax. 3500	180		Lmax. 3000	140			
THL 100/1000	>=50	/	L > 500 W > 500	L > 145 W > 310	/	L > 500 W > 500	L > 145 W > 310	/	L > 500 W > 500	L > 145 W > 310	
		30	2450x1500	1000	985	2000x1500	845	835	1900x1250	650	645
		25	2850x1500	860	710	2400x1500	730	620	2250x1250	565	515
		20	3000x1500	830	535	2750x1500	705	475	2600x1250	550	410
		15	3000x1500	700	365	2900x1500	640	320	2800x1250	510	290
	10	2750x1500	500	215	2550x1500	445	195	2650x1250	380	175	
Ø 200–600	Lmax. 4500	450		Lmax. 4000	380		Lmax. 3500	300			

Ask your supplier!

L= length (mm), W = width (mm)

Please note the holding force table on the magnet when using special pole shoes!

**7. Guarantee:**

Please take note of our GTC on [www.meusbürger.com](http://www.meusbürger.com).