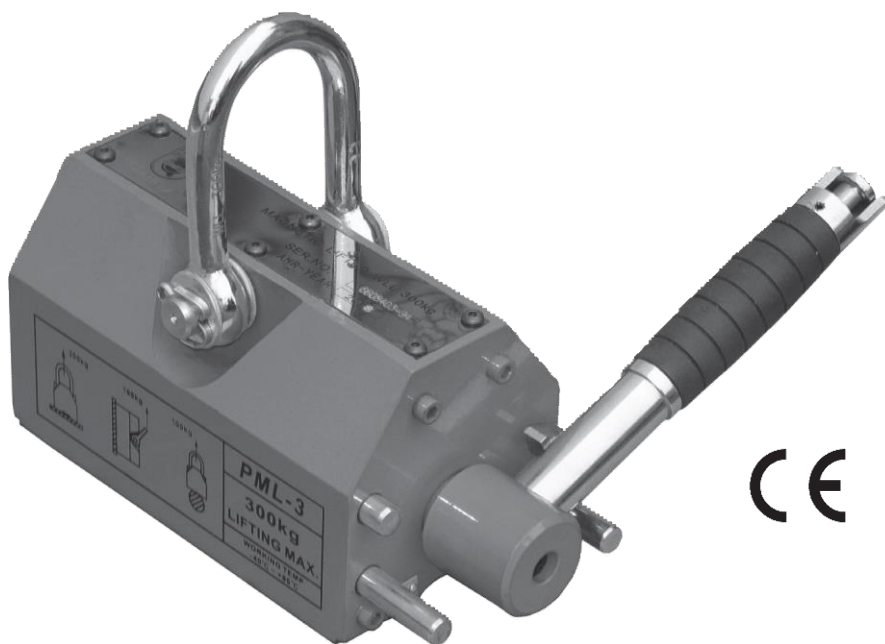


Operating and maintenance instructions for **Permanent load lifting magnet PML**

Installation - Operation - Maintenance



IMPORTANT - READ BEFORE USE!

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GENERAL NOTES

We congratulate you on your purchase of a PLANETA product and ask you to read these operating and maintenance instructions carefully and follow the instructions before putting the unit into operation. Thank you very much.

Our customer service is at your disposal for any questions or information regarding the load lifting magnet.

MEANING OF THE INSTRUCTIONS

The operating and maintenance instructions must be considered an integral part of the lifting magnet.

Therefore, it must be kept carefully during the entire service life of the lifting magnet. All documents sent must be inserted in the instructions.

The instructions must be handed over to all other users or subsequent owners of the lifting magnet.

STORAGE OF THE INSTRUCTIONS

- Keep these instructions in a safe place.
- The contents of the instructions must not be changed under any circumstances.
- It must be protected from moisture and heat.

The explanations and illustrations in this manual are not binding.

In the interest of continuously improving the quality of the product and adapting it to the latest state of the art, we reserve the right to make changes to parts, components and accessories at any time and without any obligation to update these instructions in advance. The next printing will then take these changes into account.

PLANETA® retains ownership of this manual.

Reproductions, including excerpts, or disclosure to third parties are only permitted with prior consent.

0 INTRODUCTION



ATTENTION

No changes may be made to the original configuration of this unit.

It may result in damage to the unit as well as danger to the operator if the unit is used for work other than that specified by the manufacturer.

The handling of deviating special materials that are not in of this manual requires the prior consent of the manufacturer.

SYMBOLS USED

Work that may pose a risk if not carried out correctly is indicated in these instructions by the following symbol:

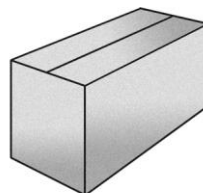


1 TRANSPORT AND MOVE

1.1 PACKAGING TYPE

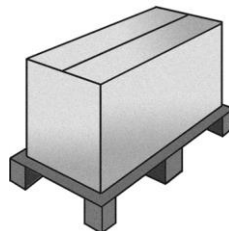
PML-1, -3, -6

Carton; the lifting magnet is placed and secured in the carton protected by foil and polystyrene. This ensures mechanical integrity in the event of an impact or accident.



PML-10, -20

Cardboard box on wooden pallet; the lifting magnet is placed in the cardboard box protected by foil and polystyrene (see right). The lifting magnet is attached to a wooden pallet to make it easy to move.



2 DESCRIPTION OF THE DEVICE

The device described in these instructions is a permanent magnet lifting magnet with manual operation. It is ideally suited for moving, lifting, relocating and setting down ferromagnetic materials such as sheet metal, flat steel, round steel, etc. made of common ferrous material.

The property of permanent magnets of being able to attract ferrous materials with a magnetic field is used. By switching the lever, a core in which the permanent magnets rest is rotated in such a way that a magnetic flux is generated. This acts on the load to be moved during operation and is short-circuited in the load lifting magnet itself in the rest position (see par. 3.4).

2.1 IDENTIFICATION DATA

There is a manufacturer's **identification plate** on the appliance in accordance with EC STANDARDS (see illustration below).

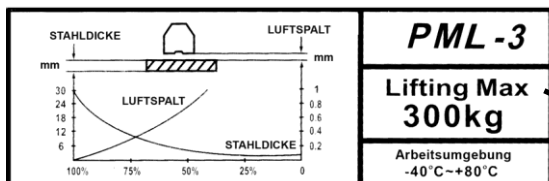


ATTENTION

The identification plate attached to the unit must not be removed under any circumstances, even if the unit is resold. The embossed **identification number** must

always be specified in all communications with the manufacturer.

The manufacturer shall not be liable for any personal injury, damage to property or accidents resulting from failure to comply with the above provision. In this case, the operator himself bears the sole liability.



2.2 AREA OF APPLICATION

Machine shops, foundries, mechanical workshops and, in general, all workplaces where it is necessary to move iron parts quickly and reliably with overhead or elevated cranes. The lifting magnet must be installed in a lifting system whose arrangement guarantees the necessary escape routes.

The working environment must have the following characteristics:

- Minimum temperature: - 40°C;
- Maximum temperature: + 80°C;
- Humidity max: 80%.

2.3 RESTRICTIONS ON USE

The lifting magnet is equipped with permanent magnets. The device is a magnetic clamping system with a ring-shaped clamping bracket. The device can only function as a lifting magnet if it is attached to a hook of a hoisting or lifting device. The instructions for the lifting magnet indicate the limitations of use.

2.4 IMPROPER USE

Improper use of the permanent lifting magnet is determined by the restrictions on use. Improper use" is any type of use that is not specified in the instructions.

3 TECHNICAL FEATURES

3.1 AVAILABLE MODELS

There are five different types of permanent magnetic lifting magnets. These differ in terms of power, dimensions and weight.

- **PML-1**
- **PML-3**
- **PML-6**
- **PML-10**
- **PML-20**

Always select the model based on the actual performance requirements. This is the only way to ensure optimum and lasting functionality for the work for which the lifting magnet is to be used.

When choosing, the following parameters must be carefully considered:

- **Load capacity:** The permissible load capacity of the lifting or handling equipment used must not be exceeded by the weight of the lifting magnet together with the weight of the load to be lifted.
- **Type of load:** The material must have a flat and clean surface and be ferromagnetic. Sufficient material thickness must be ensured. The steel parts to be moved must have a low carbon content, otherwise a corresponding deduction must be taken into account for stainless steel (see par. 3.3).

3.2 CONSTRUCTION

The mechanical construction of the **PML** lifting magnet is characterised by a very low number of components. Rotor and stator are made of steel and have a high magnetic permeability. The mechanical processing is carried out with the help of NC machines. The parts are produced from a compact workpiece.

This process ensures product uniformity and robustness, as well as the quality control necessary for a mass-produced magnetic lifting magnet.

After dismantling the unit, the material used (steel, aluminium, plastic) can be easily disposed of and recycled. The **magnetic material** used has a high specific energy and has made it possible to reduce weight and size to a minimum.

Before delivery, each lifting magnet is carefully tested by the manufacturer.

3.3 PERFORMANCE

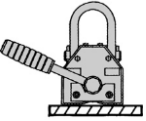
The nominal load capacity applies to a load made of steel whose thickness is greater than the pole width. For materials other than mild steel, **the following reductions in load capacity** must be taken into account: Stainless steel = 0.8: High carbon steel = 0.7: Cast iron = 0.45.

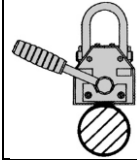
Nevertheless, the strength of the load has an influence on the lifting capacity of the lifting magnet. If the strength is smaller than the pole width, there is a reduction in the load-bearing capacity that is approximately proportional to the ratio of the strength and the stated width: $K = S/l$.

The temperature of the load must not exceed 80°C: For higher temperatures, please contact our technicians.

Load characteristics

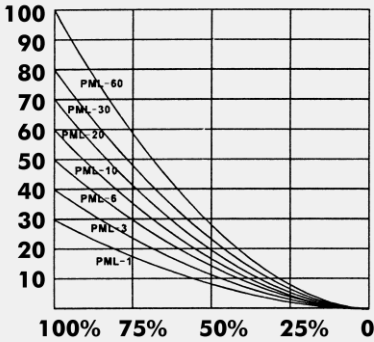
The lifting performance data, together with the load dimensions, are indicated on the identification plate attached to each lifting magnet.

CHARACTERISTICS OF THE LOAD					
Load conditions	Type	Load max. (kg)	Thickn ess min. (mm)	Lengt h max. (mm)	Diameter max. (mm)
	PML-1	100	15	1500	-
	PML-3	300	25	2000	-
	PML-6	600	30	2250	-
	PML-10	1000	40	2500	-
	PML-20	2000	55	3000	-
	PML-1	45	-	1000	50
	PML-3	180	-	1750	100
	PML-6	270	-	2000	125
	PML-10	450	-	2500	150

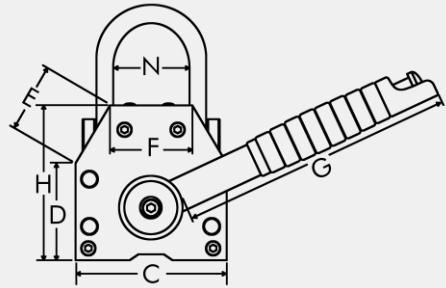
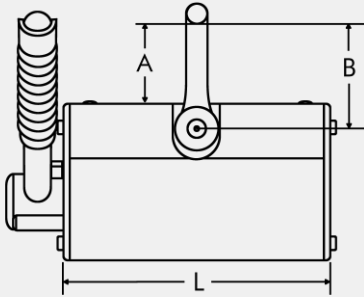
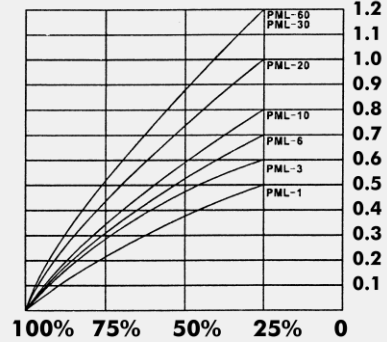


PML-20	900	-	3000	200
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Dicke (mm)



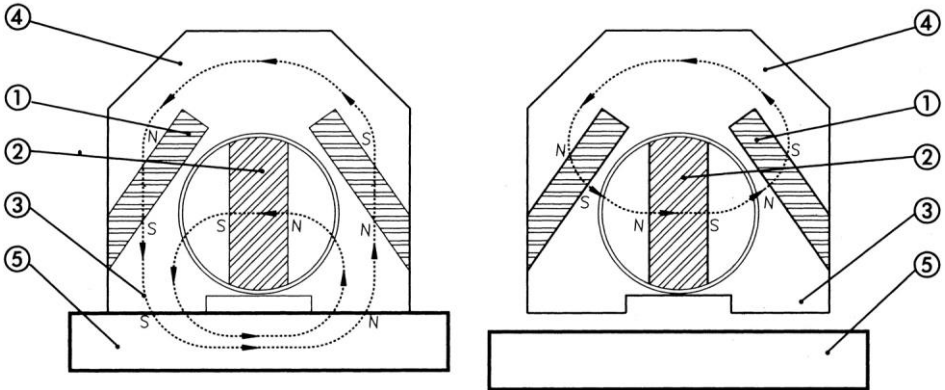
Luftspalt (mm)



TYPE	Load-bearing capacity kg	Dimensions in mm										Flat material			Round material			Wt.
		A	B	C	D	E	F	G	H	L	N	Max. load kg	min. Thickness mm	max. length mm	Max. load kg	max. Ø mm	max. length mm	kg
PML-1	100	42	145	72	44	28	28	116	76	94	31	100	15	1.500	45	50	1.500	3
PML-3	300	59	180	94	59	39	44	142	106	169	46	300	25	2.000	180	100	1.750	11
PML-6	600	87	230	115	70	44	56	178	115	218	58	600	30	2.250	270	125	2.000	25
PML-10	1.000	110	280	145	100	68	88	237	147	270	95	1.000	40	2.500	450	150	2.500	42

PML-20	2.000	150	450	160	135	98	115	397	165	340	117	2.000	55	3.000	900	200	3.000	70
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3.4 WORK CURRENT



**Fig
MAG" phase**

**AAbb. B
DEMAG" phase**

- 1) Permanent magnet**
- 2) Reversible permanent magnet**
- 3) Magnetic current collectors (poles)**
- 4) Ferromagnetic rim**
- 5) Ferromagnetic part to be anchored**

Magnetic circuit with two permanent magnetic cores with high coercive force, one of which is permanent

(1) and one reversible (2), which act on the pole extensions (3) and the ferromagnetic ring (4).

In the "MAG" phase (Fig. A), the reversed-pole core is parallel to the permanent core. This creates a magnetic field that closes over the pole extensions (3) and the part to be anchored.

In the "DEMAG" phase (Fig. B), the two cores are in series (rotation of the reversible core by 180°), which generates a magnetic field that short-circuits in the yoke.

4 NORMAL USE

4.1 ATTENTION



Even if the magnetic field acts through non-magnetic bodies such as air, dust, non-ferrous metals in general, the **greatest effect of** a magnetic lifting magnet is achieved when the poles (*) of the lifting magnet have **good contact** with the surface of the load.

The "drop" in the anchoring force (daN) of the lifting magnet when the air gap is increased (in mm) is shown in the force characteristic curve on page 9. The possible causes for this are "Obstacles" between the poles and the load (foreign bodies, depressions, scale, humps, lashing, etc.).

IT IS RECOMMENDED:

- 1.** Do not place the lifting magnet in heavily deformed or very dirty areas of the load.
If this is not possible, the performance specifications of the force-load-air gap characteristic curve must be observed depending on the characteristics of the load to be lifted.
(See the characteristic curve attached to the lifting magnet and indicated in the operating and maintenance instructions).
- 2.** The surfaces of the load must be cleaned before placing the lifting magnet. If this is not possible, observe the power specifications of the force-load-air gap characteristic curve depending on the characteristics of the load to be lifted.
(See the characteristic curve attached to the lifting magnet and indicated in the operating and maintenance instructions).
- 3.** Check the mechanical condition of the magnetic poles regularly to ensure good planarity. There must be no damage due to mechanical causes.

(*) The term "poles" refers exclusively to the surfaces or areas of the magnetic current collectors that are in contact with the load.

4.2 COMMISSIONING

After opening the packaging of the lifting magnet, it can be put into operation very easily and safely if the load limits of the lifting magnet and the overhead travelling crane/high crane/hook to which the lifting magnet is anchored and the applicable regulations for handling suspended loads are observed (see NOTE on page 12).



ATTENTION

To be able to carry out the intended work safely, the user must make sure that the lifting magnet installed on the unit is suitable.

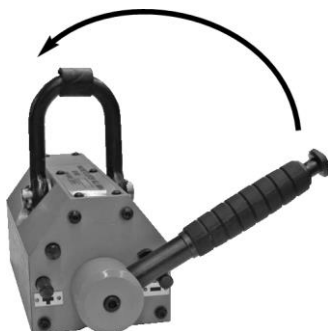
1. Activate the lifting magnet by turning the lever to "**+** (MAG)" until the lever lock is engaged (see description of **operating phases**).
2. When moving the load, ensure compliance with all applicable regulations for moving suspended loads.
 - No persons are allowed in the working area.
3. Lowering the load: The operation must be carried out before the load is released. Make sure that the load is completely resting on the ground or on a support suitable for the load being moved.
4. Deactivate the lifting magnet to lower the load: To do this, press the unlocking button at the upper end of the lever firmly in by hand and hold it there. Then move the lever to the "**-** (DEMAG)" position with the release button pressed in (see description of **operating phases**).
 - No persons are allowed in the working area.

NOTE:

When carrying out the above-mentioned work steps, it is essential to observe the applicable work regulations as well as the regulations on the handling of suspended loads.

4.3 OPERATING PHASES

MAGNETISATION



- (DEMAG.)

MAGNETISATION PROCESS:

- 1) Move the lever from the - (DEMAG) to the + (MAG) position (Fig. 1).
- 2) Check that the lever is fully secured by the lever lock (Fig. 2).

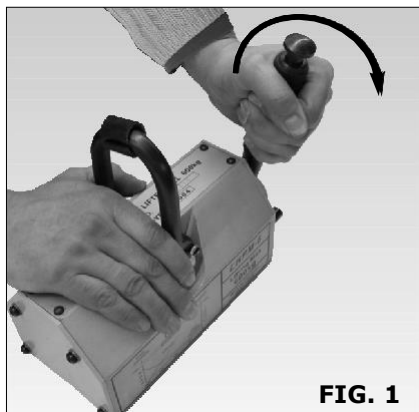


FIG. 1

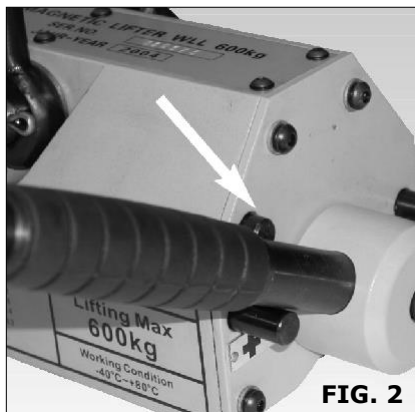
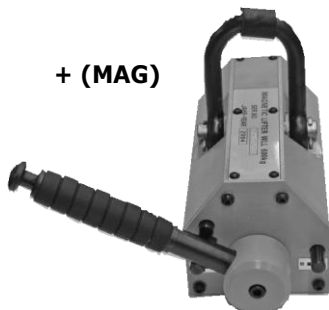


FIG. 2

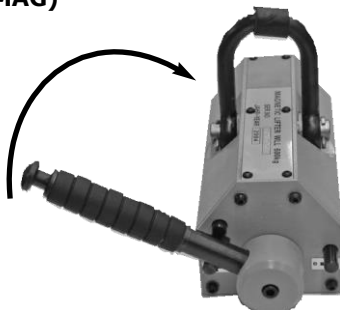
+ (MAG)



**MAGNETISED
LIFTING MAGNET**

DEMAGNETISATION

+ (MAG)

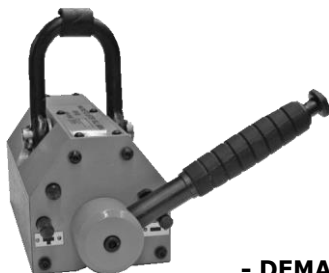
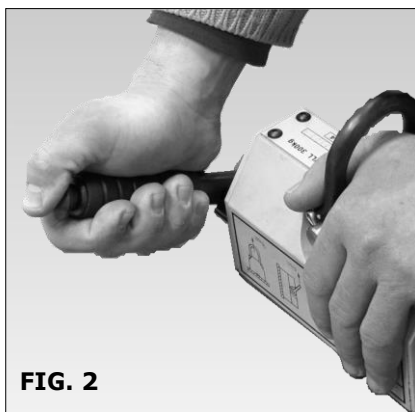
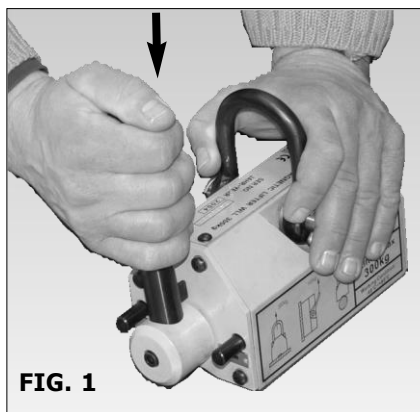


DEGAUSSING PROCESS:

- 1) Grasp the lever, press in the unlock button with your thumb in the direction of the arrow and hold (Fig. 1).

Caution: There is a risk of injury if handled improperly.

- 2) Hold the lever as shown in Fig. 2 and slowly turn it to the DEMAG (-) position.



- DEMAG.

**DEMAGNETISED
LIFTING MAGNET**

5 SAFETY REGULATIONS

- Do not use the lifting magnet for lifting and transporting people.
- No loads may be lifted when persons are in the working area.
- Walking through, standing or working under the suspended load is prohibited.
- Unqualified personnel or persons younger than 16 years are not allowed to use the lifting magnet.
- Only use the lifting magnet with suitable work clothing and in compliance with the occupational health and safety measures.
- Never leave suspended load unattended.
- Do not use the lifting magnet for purposes other than those for which it is intended.
- Do not vibrate the load during transport.
- When transporting the load, make sure that the target areas are not approached at full speed.
- Magnetise the lifting magnet only after it has been placed on the load.
- Lift the load only after the hand lever has been turned and locked in the "MAG" position.
- Do not lift the load if the permissible load capacity of the lifting magnet is exceeded.
- Do not lift the load if the dimensions exceed the specifications on the identification plate or in the instructions.
- Lift the load only if it is evenly distributed.
- Do not move the load until you have checked that the magnetic holding force is fully applied by lifting it slightly (approx. 10 cm).
- Only start the demagnetisation process after the load has been completely placed on the ground and it has been checked that it is resting stably.
- Always follow the information and instructions in the installation and manuals.
- Check that the support structure is stable.
- Before moving the load, make sure that the working area is free of obstacles.
- Check lifting magnet for cleanliness, lubrication and maintenance condition.
- Always use the polarisation surface of the lifting magnet completely.
- Always make sure that the pole faces are even and parallel to each other.

6 MAINTENANCE

Maintenance work by the operator is not required for the PML permanent lifting magnet. In the event of mechanical or other types of damage, PLANETA will repair the lifting magnet at the factory, taking into account any warranty claims that may still be valid.

Regular controls

- A)** Check the mechanical condition of the magnet poles of the lifting magnet (elements in contact with the load). In the event of damage or excessive wear, the manufacturer (PLANETA) must be informed before any further use of the lifting magnet.
- B)** Check the identification plates on the lifting magnet for perfect condition and legibility. If the identification plates are illegible, the manufacturer (PLANETA) must be informed before any further use of the lifting magnet.

PLANETA accepts no liability for possible malfunctions or accidents due to repairs or modifications to the lifting magnet carried out by the customer.

7 DISPOSAL

7.1 STORAGE

If the lifting magnet is not used for a certain period of time, we recommend the following measures:

- Clean each part carefully.
- Cover the system with an impermeable tarpaulin.
- To ensure that the lifting magnet is not an obstacle, it must be stored in a separate area.
- Store the system in a dry environment.

7.2 END OF USE

In order to protect the environment, some basic rules must be observed.

Plastic parts and non-metallic parts must be removed and disposed of separately if the lifting magnet has no further use for any reason.





PLANETA- Lifting technology GmbH



EC DECLARATION OF CONFORMITY

within the meaning of EC Directive 2006/42/EC, Annex II A

We hereby declare,

PLANETA-Hebetechnik GmbH, Resser Straße 17, D-44653 Herne

that the product

Lifting magnet Model series
PML in the load range **100kg - 2,000 kg**

designed for lifting and lowering loads, in the standard version, including load control

complies with the following relevant regulations: EC

Machinery Directive 2006/42/EC

Authorised to compile the relevant technical documentation:

Dipl.-Ing. Matthias B. Klawitter, CE Coordinator,
PLANETA-Hebetechnik GmbH, Resser Straße 17, D-44653 Herne

Herne, 18.08.2016

PLANETA Lifting Technology GmbH

Dipl.Ök. Christian P. Klawitter
(Managing Director)

Responsible for completion, assembly and commissioning in accordance with the operating instructions:

Location:: Date:

Responsible:

Company:

Mandatory retests

Type of examination	Test date	Name & signature of the examiner	Findings

Notes

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Your responsible supplier: