FXE LIFT



# Operation Instructions for Electro-Permanent Truss FXE-T7200/80

FLAIG Magnetsysteme
**Feurenmoos 15 • 78739 Hardt**
Tel.: +49 7422 / 940010 • Fax +49 7422 / 9400125
info@flaig-te.de • www.flaig-te.de

# Operation Instructions for Electro-Permanent Truss FXE-T7200/80

NOTE: Please read the operating and maintenance instructions prior to first use carefully. For questions or doubts you should contact your local dealer.
This manual is part of the lifting magnets and have to be available to the user at any time.

Caution:
**Put the magnet on a tasks for which it is specifically adapted, in case of any doubts contact your dealer.**
**Do not change the original configuration of the device.**
**Please also note the regulations of the professional associations for handling slings.**

**1. SCOPE OF APPLICATION**
The FXE Magnetic Truss FXE-T 7200/80 is designed to lift flat steel parts

**2. TECHNICAL DATA:**

| Model | Dimensions (mm) | | | Max. Load Capacity (kg)* | Weight (kg) | Voltage | Fuse |
|---|---|---|---|---|---|---|---|
| | L | W | H | | | | |
| FXE-T7200/80 | 3100 | 780 | 1250 | 7200 | 560 | 400V / 50Hz | 25A |
| *from 25mm Material thickness • WLL mechanic 2x4t on welded Hooks | | | | | | | |

**2.1 Load data and Workpiece dimensions**

**WLL on beams and profiles**
**L= 1200-12000mm, W = 180-2000mm**
**from 6mm -> WLL 800 kg**
**from 10mm -> WLL 1500 kg**
**from 15mm -> WLL 3000 kg**
**from 25mm -> WLL 5000 kg**

**WLL on sheet**
**Flat material from 6mm, L = 600-6000mm, W = 700-3000mm**
**WLL 7200 kg**

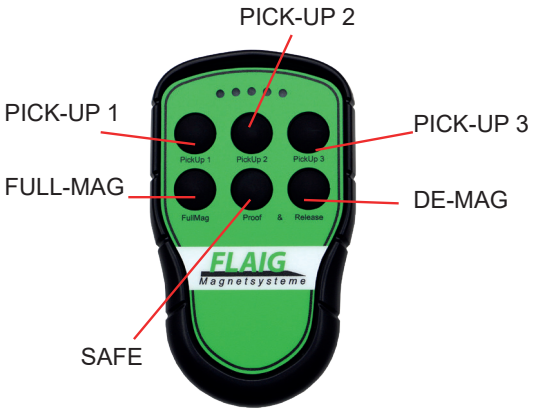
**2.2 Commissioning Operation and function:**

**2.3 Commissioning**

Before the magnet truss is connected to the power supply, all electrical components and cables must be subjected to visual inspection. All mechanical components must also be tested for cracks and wear. Connect the mains cable to the 400V / 50 Hz power supply. A fuse with at least 35A gG is required.

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**2.4 Explanation Remote Control**
Please note when using the remote control:
First press the red button for ON/OFF; the Green Radio LED lights
• For switching aim for the magnet.
• Function and operation of each button see section 3.3-3.4 of this manual!
• Operate the magnet only by one person!
• Max. Reach 8m
• When the red Battery-LED lights change the battery




**3. INTENDED USE**
The FXE lifting magnet is controlled either via 4 push buttons or via the remote control supplied, these are from left to right: **PICK-UP with red LED • FULL-MAG with green LED • SAFE with orange LED • DE-MAG with white LED**

**ATTENTION: FOR LARGE-SCALE WORKPIECES, REMOTE CONTROL IS PRINCIPALLY RECOMMENDED!**

**3.1** Connect the lifting magnet to 400V mains voltage. The white LEDs above the DE-MAG button flash to indicate that the magnet is in an undefined state.

**3.2. Forced guidance with double magnetization in PICK-UP operation:**
To pick up a single thin sheet metal part from a stack (Pick-Up 1&2) or to check whether the workpiece can be transported with sufficient safety (Pick-Up 3). Place the magnet on the workpiece and press the PICK-UP button, the orange cycle LED above the SAFE button lights up briefly. The red LED above the PICK-UP button then lights up to indicate that the magnet is activated with partial power. **In this state, the workpiece may only be lifted slightly but must not be transported under any circumstances!**
**CAUTION: The PICK-UP command can only be executed when the lifting eye is UNLOADED. The magnet has three pick-up levels. Pick-up 1&2 are used for sheet metal separation (pick-up 1 has a weaker holding force than pick-up 2), pick-up 3 is the safety pick-up (to check whether the workpiece can be transported safely). Only pick-up 3 can be carried out via the membrane keypad. Pick-up 1&2 can only be carried out via the remote control (see page 8)**

**3.3 Transport in FULL-MAG mode:**
The maximum magnetization can only be triggered with this button after the safety has been checked using the PICK-UP mode. After pressing the button, the orange cycle LED above the SAFE button lights up briefly and then the green status LED in the FULL-MAG button lights up to indicate that maximum magnetization has taken place. Only carry out transports when the green LED is lit and the alarm LED (SAFE) is not permanently lit!
**CAUTION: The FULL-MAG command can only be executed when the lifting eye is LOADED.**

**3.4 Release of the workpiece by DE-MAG:**
To release the workpiece, the SAFE and DE-MAG buttons must be pressed simultaneously. The orange cycle LED above the SAFE button lights up briefly and then the white status LED above the DE-MAG button lights up.
**CAUTION: The DE-MAG command can only be executed when the lifting eye is UNLOADED.**
**Additional LED status indicators:**

**3.7** After connecting the magnets to the mains or after a mains failure, the white LED flashes in the DE-MAG button. This indicates that the magnet is in an undefined state. Press the FULL-MAG key to perform a magnetizing cycle. After releasing the workpiece, the green LED in the key FULL-MAG lights up.

**3.8** If there is insufficient magnetization the red LED flashes in the SAFE button as an alarm signal. The cause may be a weak supply network, insufficient cable cross-sections, or a too high power internal resistance at the connection point.

**Caution:**
- Never activate the magnet before it is seated on the load - the achievable holding forces were up to 10x lower than when activating on the load!
- Perform command ENTMAG only when the Load is laying secured!
- Disconnect the magnet only when its demagnetized!

# Operation Instructions for Electro-Permanent Truss FXE-T7200/80

**LED status indicators**




**The magnet is partially magnetized; ready for full magnetization**




**The magnet is fully magnetized; ready for demagnetization**




**The magnet is demagnetized; ready for magnetization**




**The magnet is magnetized: ready for demagnetization**

# Operation Instructions for Electro-Permanent Truss FXE-T7200/80

**LED status indicators**




**The magnet is demagnetized, the lifting eye is unloaded; ready for magnetization**




**The lifting eye is loaded; no magnetization recommended**




**The magnet is magnetized, the lifting eye is loaded; demagnetization is not possible**




**The magnet is magnetized, the lifting eye is unloaded**
**CAUTION: The magnet can only be demagnetized AFTER the load has been applied and the lifting eye has been relieved again**

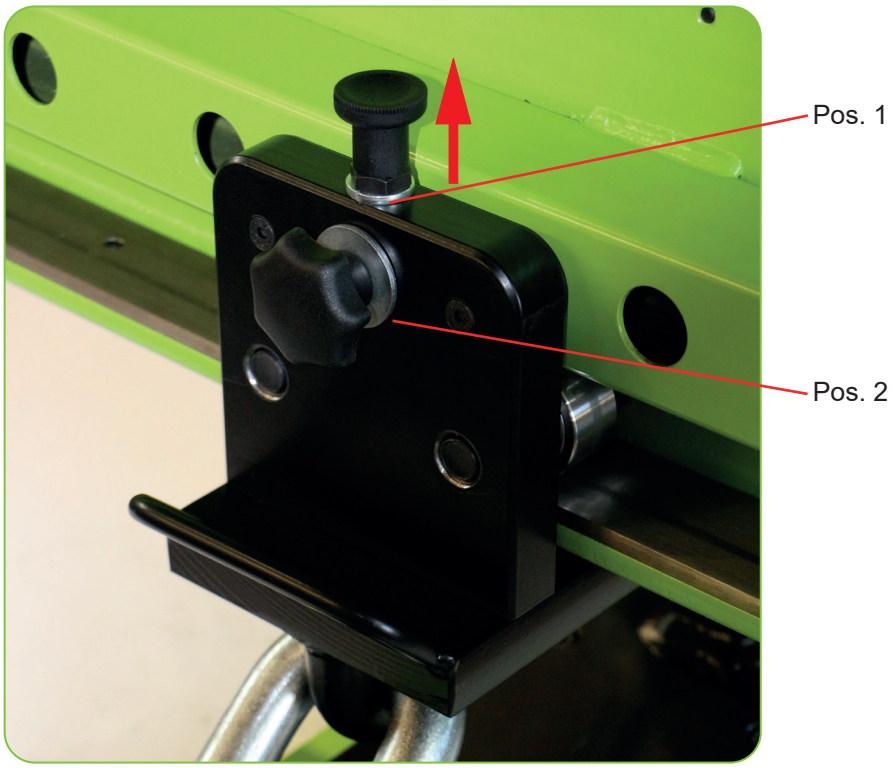
# Operation Instructions for Electro-Permanent Truss FXE-T7200/80

**3.9 Adjusting the magnetic modules**

The magnetic modules can only be adjusted with the Truss slightly raised and the modules suspended.
To do this, lift the locking bolt (Pos.1) and then pull the plug-in bolt (Pos.2). After moving the modules, reinsert the plug-in bolt until the locking bolt engages again.

**CAUTION:**

Magnetic modules must always be adjusted symmetrically on the Truss, no one-sided loads.
Transport operation only with plug-in bolts inserted!



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## 4. FACTORS AFFECTING THE LIFTING FORCE OF THE LIFTING MAGNETS

On the underside of the lifting magnets are the two magnetic poles, which transmit the magnetic force in the activated state to the load. The maximum possible forces and thus the Lifting capacity depend on the factors described in 4.1-4.5. Note this anytime and check BEFORE any application, whether the data of the lifting magnets and the load allows a safe transportation.

### 4.1 THE CONTACT SURFACE

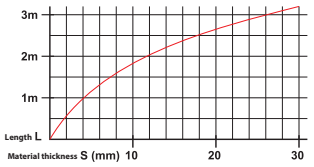
The contact area between Lifting magnet and the load to be lifted should be clean and free of irregularities in any case. If a distance (air gap) is made between the lifting magnets and the load to be lifted, this reduces the lifting capacity. Rust, paint, dirt, paper, or a roughly machined surface can thus have an air gap result.

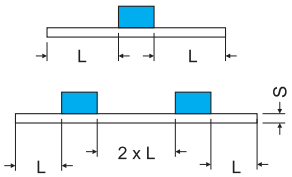
### 4.2 THE MATERIAL THICKNESS

The magnetic flux of the lifting magnets requires a minimum material thickness. If the workpiece does not accomplish a minimum material thickness, this will reduce the lifting force. Basically higherv Lifting capacity requires increasing the thickness.

### 4.3.THE WORKPIECE DIMENSIONS/INTRINSIC STABILITY

At great length and width of the workpiece it bends through and formes an air gap between the workpiece and the lifting magnets (primarily at low thicknesses). This reduces the lifting force of the lifting magnets. Not intrinsically stable workpieces also vibrate more than massive workpieces and the resulting, the dynamic forces act in addition to the contact surface.



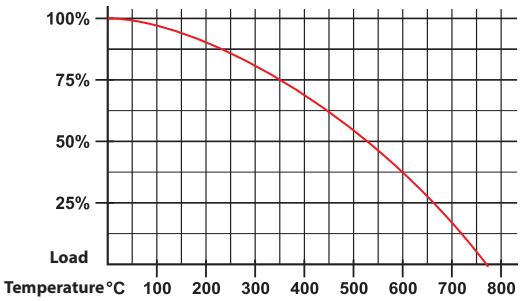

### 4.4 THE COMPOSITION OF THE LOAD TO BE LIFTED

Steel with low carbon content is a good magnetic conductor e.g. C-40 or St -37. Steel with a high carbon content or with other materials alloyed steel loses its magnetic properties, so that the power of the lifting magnets is reduced. Hardness and other methods which affect the steel structure also reduce the lifting power. The harder a steel, the lower its response to magnetic fields and it tends to residual magnetism.
The nominal power of our Lifting magnets applies to steel with low carbon content, such as e.g. C-40 or St-37.

| Material | Lifting capacity in % |
|---|---|
| mild steel 0,1 - 0,3 % C ST37/52 | 100 |
| mild steel 0,4 - 0,5 % C | 90 |
| alloyed steel 2312/2379... | 80 - 90 |
| cast iron GGG | 70 - 80 |
| cast iron GG | 45 - 60 |
| alloyed steel hardened at 55-60 HRc | 40 - 50 |
| stainless steel | 0 |
| Brass, aluminum, copper | 0 |

### 4.5 THE TEMPERATURE OF THE LOAD TO BE LIFTED

The higher the temperature, the faster the molecules of the steel swing, which causes a lower magnetic conductivity. Our figures are for a workpiece temperature up to max. 80°C.




CAUTION: You have to combine all the factors which reduce the lifting power and observe one to another.

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**5. INSTRUCTIONS FOR COMMISSIONING AND OPERATION**

To use the lifting magnets correctly , the device is to be placed on a clean, flat and smooth as possible steel surface of the load. The max. potential loads are shown in Table 1. For rough surfaces or thin steel parts is to reduce the lifting force correspondingly Chart 1 taken into account, as well as the other reduction factors in paragraph 4.

Notes on commissioning

Assignment:
Lifting magnets may be used only by persons who are familiar with these duties and when there is a commission.
When handling loads the boundaries for the manual lifting and carrying of loads by a person have to be observed:

| **Persons:** | **Frequent Lifting and carrying under average Working conditions** | **Occasional Lifting and carrying under favorable Working conditions** |
|---|---|---|
| Men | 18 to 25 kg | 40 to 50 kg |
| Women | 8 to 10 kg | 13 to 15 kg |
| pregnant Women | 5 kg | 10 kg |

**Operation**

**Lifting magnets are applied, they are not charged on their carrying capacity addition and that the load is secured against falling. The following further points should be observed in handling lifting magnets:**

- Loads are running loose items may not be transported.
- Initially raise only a few centimeters and check whether the load securely holds.
- Loads have to be raised and depose that accidental falling, falling apart, slipping or Unrolling of the load is avoided.
- With lifting magnets dangerous goods shall not be lifted.
- Lifting magnets are applied in a way, that people are not endangered.
- A load slippage in lifting operation must be avoided.
- No lift loads while persons resident in the work area
- never Embark under suspended loads
- Lifting Magnet only switch on suitable load
- Do not overload Hoist and slings, also calculate the weight of the lifting magnets.
- Do not poke suspended loads or put them in vibration

**6. RISKS / DEFECTS / DAMAGES**

Lifting magnets are applied so that damage which can lead to impairment, is avoided .
Lifting magnets are observed during use for visible defects.
Obvious defects are, for example, deformation, cracks, breaks, incomplete labeling drawings. Lifting magnets with deficiencies which may affect the safety, must be withdrawn further use (replacement state).

Note in particular:
- No lifting of uneven and porous workpieces.
- Avoid burrs, sharp corners and edges.
- lift surfaces must be clean, dry, free from oil and grease and any loose surfaces coatings etc.
- An unintentional detachment from the crane hook must be avoided.
- Knocks, blows and falls are to be avoided in any case.
- Apply the Lifting magnet just in a dry environment.
- Oil the moving parts from time to time and protect it at the magnetic poles Between longer intervals use corrosion protection.

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## 7. REPAIR AND TESTING

**Testing**

Examination before the first start

Lifting magnets may only be put into operation if any defects have been fixed and checked by a specialist.

Regular inspections

Lifting magnets must be checked from an expert at intervals not exceeding one year.

Extraordinary inspections

After damage or special events that may affect the viability, and are subjected to repair, an extraordinary inspection by specialist is neccessary

Extent

The inspection before the initial commissioning and regular tests are essentially visual and functional tests. You have to extend to examination of the condition of the components and devices on the intended assembly and for completeness and effectiveness of safety devices.

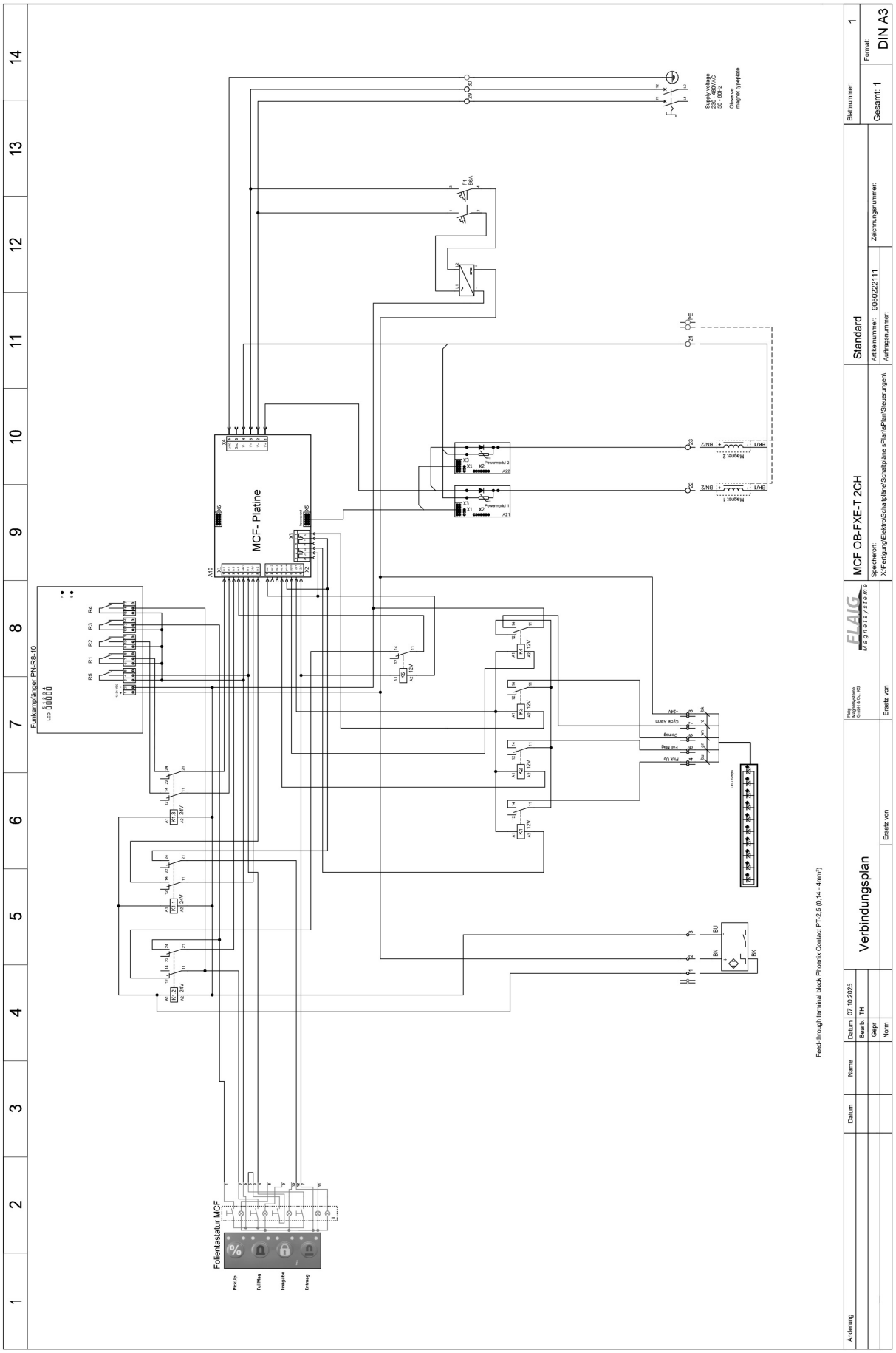
The extent of the exceptional test depends on the nature and extent of the pollution, the incident or repair. The tests must be documented.

## 8. STORAGE AND DISPOSAL

Lifting magnets have to be stored in a way they do not tilt, fall or can slide. Lifting magnets should be stored protected from the weather and corrosive substances. For longer storage, it is advisable to lubricate the device. At the end of the use of lifting magnets or at end of life, the device must be disposed of properly and environmentally friendly, take note of the relevant provisions of the relevant authorities.

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## 8. WIRING DIAGRAMM MCF



# EC Declaration of Conformity

**For a safety component to confirm compliance with the Machinery Directive 2006/42 EC, Annex 2C.**

**Herewith declared:**

**Flaig Magnetsysteme GmbH & Co. KG**
**Feurenmoos 15**
**D-78739 Hardt**
**Germany**

**That the individual load lifting device designated below is placed on the market with the following safety function:**

**Electro-permanent magnetic lifting beam for transporting flat ferromagnetic workpieces by crane.**

| Model | WLL from 25mm Material thickness | WLL mechanic |
|---|---|---|
| FXE-T 7200/80 | 7200 kg | 2x4t on welded hooks |

**Serial-Nr.: XXXX IC720 XXX**

**Complies with the provisions of the Machinery Directive 2006/42 EC and the national legislation implementing it.**

**Applied harmonized standard: EN ISO 12100:2010 & EN 13155:2022**

**Hardt/Germany 02.09.2025**



**Horst Flaig (Documentation)**



**Horst Flaig (CEO)**

FLAIG
Magnetsysteme

# SICHERHEITS-HINWEISE

## HANDLING INSTRUCTIONS / CONSIGNES D´UTILISATION

Es besteht Verletzungsgefahr bei unsachgemäßer Behandlung von Magneten. Daher sollten Sie im Umgang mit Magneten folgendes unbedingt beachten:

Magnets can represent risks of injury in case of inproper handling. We therefore recommend to respect the following instructions when handling with magnets:

Les aimants peuvent représenter un risque de blessure en cas d´utilisation inadequate. C´est pourquoi nous vous conseillons de respecter les instructions suivantes concernant l´utilisation des aimants:



Die starken, anziehenden Kräfte der Magnete sind eine mögliche Gefahrenquelle - die Haut kann gequetscht (eingeklemmt) werden. Wir empfehlen deshalb mit geeigneten Schutzmaßnahmen zu arbeiten und zu vermeiden, dass Finger bzw. Haut zuwischen die Magnete geraten! Bitte beachten Sie, dass sich Magnete selbst aus großen Abständen anziehen können - es besteht auch hier Verletzungsgefahr!

*The strong adhesive forces of magnets are representing a possible source of danger - skin could be squeezed. We suggest therefore to work with usefull protection measures and to avoid, that fingers or skin are placed among the magnets!*
*Please pay attention, that magnets can be adhesive even over gib distances - here as well are existing dangers of injury!*

Les grandes forces d´attraction magnétique représentent une source de risques potentiel - la peau pourrait être coincée. Nous recommandons donc de travailler avec des mesures de protection appropriées et d´eviter que les doigts ou la peau ne soient placés entre les aimants!
Attention, les aimants peuvent aussi s´attirer sur des grandes distances - dans ce cas aussi il existe des risques de blessure!



Magnete können beim Zusammenprallen in scharfkantige Teile splittern. Jeglicher Zusammenprall sollte daher vermieden werden!

*Magnets can splitter into sharp pieces when crashing. Therefore any chrash should be avoided!*

Les aimants frittés éclatent en débris coupants en cas de choc. C´est la raison pour laquelle les chocs doivent être évités!



Magnete dürfen nicht in explosionsgefährdeter Umgebung eingebaut werden, weil sie Funken auslösen und Explosionsgefahr besteht!

*Magnets are not allowed to be installed in explosive areas, as they can set off sparks which could cause explosions!*

Les aimants ne doivent pas être montés dans un environnement explosif, car ils peuvent provoquer des étincelles qui pouraient déclencher une explosion!



Starke Magnetfelder können elektrische bzw. elektronische Geräte beeinflussen oder beschädigen. Dies gilt auch für Herzschrittmacher. Personen mit Herzschrittmacher müssen einen Sicherheitsabstand von mindestens 1 Meter einhalten!

*Strong magnetic fields can influence or destroy electronic equipment. Persons with pacemakers must keep a safety distance of at least 1 meter!*

Les champs magnétiques peuvent influer ou endommager les appareils électriques ou électroniques. Cela s´applique aussi pour les stimulateurs cardiaques. Les personnes portant un stimulateur cardiaque doivent respecter une distance de sécurité d'au moins 1 mètre !



Nachteilige Auswirkungen von Magnetfeldern auf den menschlichen Körper sind uns nicht bekannt.

*Negative effects of magnetic fields to the human body are unknown to us.*

Des effets défavorables de champs magnétiques sur le corps humain nous ne sont pas connus.