# **Danger**

# choking



Small magnets can be swallowed by children and if several magnets are swallowed, they can become lodged in the intestines and cause life-threatening complications.

Magnets are not toys! Make sure that the magnets do not get into the hands of children.

# **Danger**

## electrical conductivity



Magnets are made of metal and conduct electricity.

Children can try to plug magnets into a socket and suffer an electric shock.

Magnets are not toys! Make sure that the magnets do not get into the hands of children.

## Warning

## crushing



Large magnets have a very strong adhesive force.

If handled carelessly, fingers or skin can become trapped between two magnets. This leads to crushing and bruising in the affected areas. Very large magnets can cause broken bones due to their force.

Always wear thick protective gloves when handling large magnets.

## **Warning**

# pacemakers





A pacemaker can be switched to test mode and cause discomfort. A defibrillator may no longer function.

- ① If you wear such devices, keep a sufficient distance from magnets.
- Warn wearers of such devices against approaching magnets.

# Warning

# heavy objects



Excessive or jerky loads, signs of fatigue and material defects can cause a magnet or magnetic hook to detach from its base. Falling objects can lead to serious injuries.

- ① The specified adhesive force is only achieved under ideal conditions.
- Allow for a high safety factor.
- ① Do not use magnets in places where material failure could result in personal injury.

#### Warning

# metal splinters



Neodymium magnets are brittle. If two magnets collide, they can shatter. Sharp-edged splinters can be thrown meters away and injure your eyes.

- Avoid collisions between magnets.
- Wear safety goggles when handling larger magnets.
- ① Ensure that bystanders are also protected or keep an appropriate distance.

## magnetic field



Magnets generate a far-reaching, strong magnetic field. They can damage televisions and laptops, computer hard disks, credit and debit cards, data carriers, mechanical watches, hearing aids and loudspeakers, among other things.

① Keep magnets away from all devices and objects that can be damaged by strong magnetic fields.

#### **Caution**

# flammability



When machining neodymium magnets, the drilling dust can ignite. Refrain from machining magnets or use suitable tools and sufficient cooling water.



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# Caution

# Nickel allergy

Most of our magnets contain nickel, even those without a nickel coating.

- ① Some people have an allergic reaction to contact with nickel.
- ① Nickel allergies can develop through constant contact with objects that contain nickel.
- ① Avoid prolonged skin contact with magnets.
- ① Avoid handling magnets if you already have a nickel allergy.

### Caution

# air freight



Magnetic fields from improperly packaged magnets can affect aircraft navigation equipment. In the worst case, this can lead to an accident.

① Only send magnets by air freight in packaging with sufficient magnetic shielding.

#### Caution

# postal shipping



Magnetic fields from improperly packaged magnets can cause interference with sorting equipment and damage sensitive goods in other parcels.

- ① Use a generously sized box and place the magnets in the middle of the package using filling material.
- ① Arrange the magnets in a package so that the magnetic fields neutralize each other.
- ① If necessary, use iron sheets to shield the magnetic field.

## **Notice**

### effect on humans



According to current knowledge, magnetic fields from permanent magnets have no measurable positive or negative effect on humans. A health hazard from the magnetic field of a permanent magnet is unlikely, but cannot be completely ruled out.

- ① For your own safety, avoid permanent contact with the magnets.
- (1) Keep large magnets at least one meter away from your body.

#### **Notice**

# chipping of the coating



Most of our neodymium magnets have a thin nickel-copper-nickel coating to protect them from corrosion. This coating can flake off or crack due to collisions or high pressure. This makes the magnets more sensitive to environmental influences such as moisture and can oxidize.

- ① Separate large magnets, especially spheres, with a piece of cardboard.
- ① Generally avoid collisions between magnets and repeated mechanical stress (e.g. impacts).

# **Notice**

#### oxidation, corrosion, rust



Untreated neodymium magnets oxidize very quickly and disintegrate in the process. Most of our magnets have a thin nickel-copper-nickel coating to protect them from corrosion. This coating offers a certain degree of protection against corrosion, but is not resistant enough for permanent outdoor use.

- ① Only use the magnets in dry indoor areas or protect them from environmental influences.
- ① Avoid damaging the coating.

#### **Notice**

## temperature resistance



Neodymium magnets have a maximum operating temperature of 80 to 200 °C.

Most neodymium magnets permanently lose some of their adhesive force at temperatures above 80 °C.

- ① Do not use the magnets in places where they are exposed to high temperatures.
- 1 If you use an adhesive, do not cure it using hot air.

#### **Notice**

#### mechanical processing



Neodymium magnets are brittle, sensitive to heat and oxidize easily.

- ① When drilling or sawing a magnet with unsuitable tools, the magnet can break.
- ① The resulting heat can demagnetize the magnet.
- ① Due to the damaged coating, the magnet will oxidize and disintegrate.

Refrain from machining magnets if you do not have the necessary machines and experience.



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