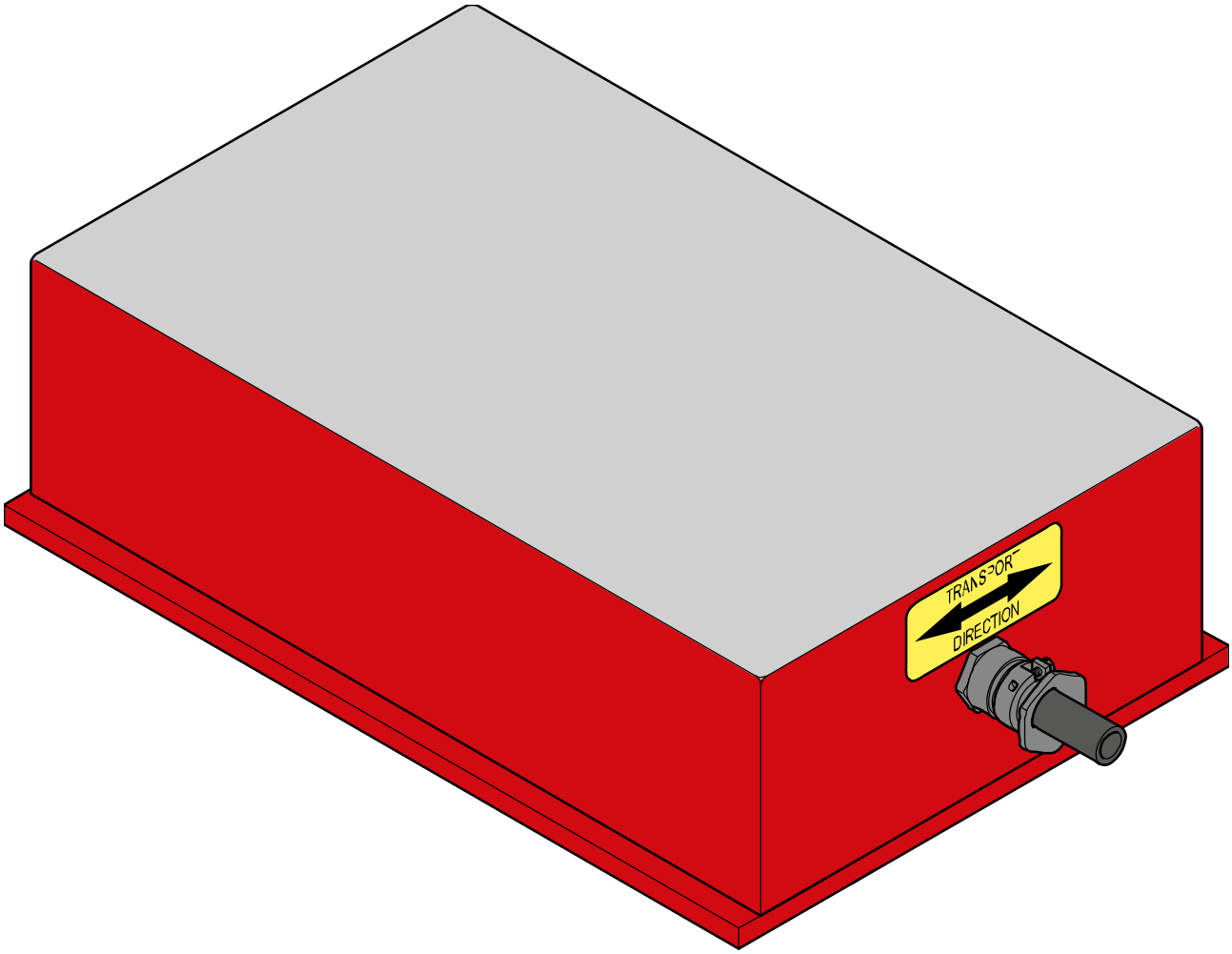
GOUDSMIT MAGNETICS

# Installation and user manual

## Plate demagnetizers, HDTA series

**Demagnetizing flat or single-sided magnetic products up to 10 mm thick**

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# 1 Introduction

This manual contains information about correct use and maintenance of the device. The manual contains instructions that should be followed to prevent injury and serious damage and to ensure safe and problem-free operation of the device. Read this manual thoroughly and ensure that you fully understand everything before using the device.

If you need more information or still have questions, please contact Goudsmit Magnetic Systems B.V.. The contact details are provided on the title page of this manual. Additional copies of the manual can be ordered by providing the device description and/or article number as well as the order number.

In this manual, the HDTA plate demagnetizer is further referred to as ‘the device’.

**NOTICE**

**Read this manual carefully before installation and commissioning!**

**The descriptions and figures in this manual, provided for explanatory purposes, may differ from the descriptions and figures of your version.**

**NOTICE**

This manual and manufacturer’s declaration(s) are to be considered part of the device.

Both documents must remain with this device if it is sold.

The manual must be available to all operating personnel, service technicians and others who work with the device throughout the life of the device.

# 2 Safety

## 2.1 Safety risks

This chapter describes the safety risks of the device. Where necessary, warning pictograms have been affixed to the device. These pictograms are explained later in this document.

**NOTICE**

Observe the following measures:

- ► Read the warning pictograms on the device carefully.
- ► Check that the pictograms on the device are present and legible at regular intervals.
- ► Keep the pictograms clean.
- ► Replace pictograms that have become illegible or that have been removed with new pictograms in the same locations.

## 2.2 General safety instructions

- The instructions in this manual must be complied with. If they are not, there is a risk of material damage, personal injury and even a danger of death.
- The device may only be used for demagnetizing flat or single-sided magnetic products up to 10 mm thick. Any other use is inconsistent with the regulations. Any resulting damage is not covered by the factory warranty.
- Only Goudsmit Magnetics personnel may perform work on the device.
- Always observe locally applicable safety and environmental regulations.
- Rectify all faults before operating the device. If the device is used whilst exhibiting a fault, after having completed a risk assessment, warn operating and maintenance personnel of the fault and the potential risks associated with that fault.

## 2.3 Danger of electrical voltage

**DANGER**

**Life-threatening danger from electric current**

Contact with live wires poses an immediate life-threatening danger. Damage to the insulation or individual components can be life-threatening.

- The device is supplied as standard with a cable without a plug. Only allow work on the electrical system to be carried out by trained electricians.
- Disconnect the electrical system and check that no voltage is present before carrying out any work.

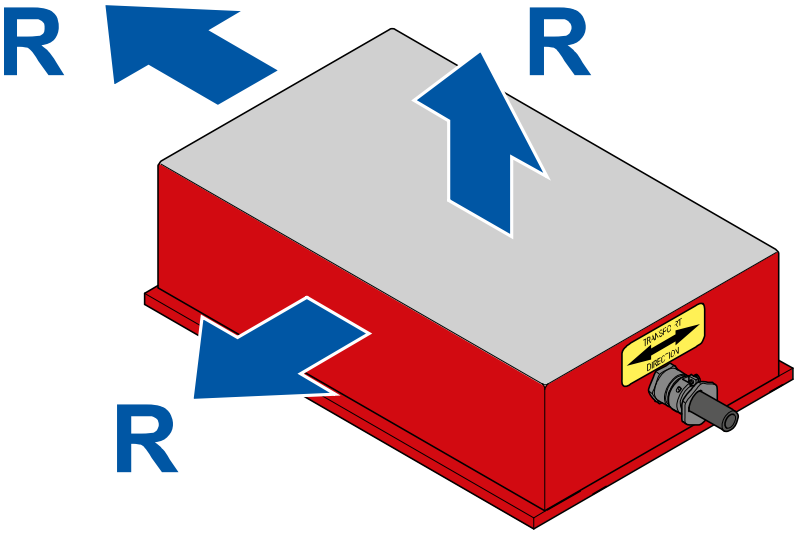
# 3 Standards and directives

## 3.1 Limit values for occupational and public exposure to permanent magnetic and electromagnetic fields

The limit values and magnetic fields are defined in accordance with the EMC Directive 2013/35/EU as follows:

*Directive* 2013/35/EU *of the European Parliament and of the Council of* 26 June 2013 *on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields).*

Observe the following measures in relation to exposure to magnetic fields in accordance with EN12198-1 (machine category = 0, no restrictions) of the device:




**Life-threatening danger to people with implanted medical aids**

People with an active implanted medical aid (e.g. pacemaker, defibrillator, insulin pump) may never be present within a radius ‘R’ of 1 metre(s) of the device.

**Damage to products with sensitivity to magnets**

Products that contain ferromagnetic parts, such as debit cards, credit or chip cards, keys and watches, may be rendered permanently damaged if they come within a radius ‘R’ of 0.1 metre(s) of the device.

Employees who are pregnant and the general public may not come within a radius ‘R’ of 1 metre(s) of the device.

Limit values for occupational exposure (general and for limbs) are not exceeded.

# 4 Magnetism

## 4.1 Magnetization of ferromagnetic materials

Ferromagnetic (or magnetically conductive) materials such as steel and steel alloys can easily become magnetized. Depending on the type of material or alloy, the material may remain magnetized; this is called remanent magnetism. Even non-magnetic stainless steel (AISI 304, AISI 316) can become magnetically conductive through deformation or welding.

The induced magnetism usually originates from another magnetic source, such as lifting magnets, magnetic chucks, loudspeakers or magnetic conveying systems. However, magnetic fields around transformers, welding cables and welding processes can also induce magnetism. In addition, operations such as drilling, grinding, sawing and sanding can cause remanent magnetism in the material.

## 4.2 The effects of unwanted magnetism

The effects of unwanted magnetism can range from inconvenient to very costly. A nut sticking to a screwdriver is inconvenient; however, two products that stick together in a mould disrupt production, resulting in financial losses. Other examples include a rough surface after galvanizing, weld seams bonding on one side, increased bearing wear, and swarf that continues to cling.

Demagnetizing the material prevents these effects.

## 4.3 Measuring the amount of magnetism in materials

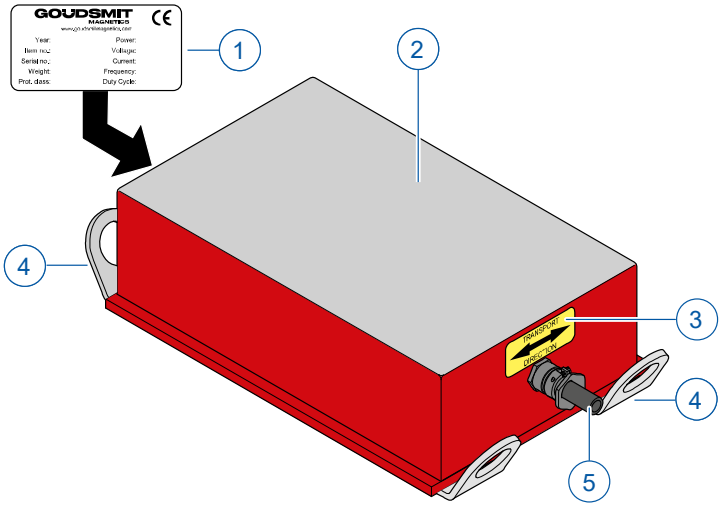
The amount of magnetism stored in materials is not always easy to measure, as it is often distributed throughout the entire material. It is usually best measurable at ends and around holes. Using a (Goudsmit Magnetics) Gaussmeter with a hall-effect sensor, you can locate and measure the field strength.

The simplest way to detect magnetism is with a metal paperclip. By attaching one to a thread and dangling it above the surface of the material, magnetic spots can be found. If the material attracts the paperclip and it continues to cling, the magnetic value is at least 20 Gauss. Below 20 Gauss the paperclip drops off, and above 40 Gauss the paperclip adheres firmly. Iron filings are retained from 10 Gauss. This is very little, since the Earth’s magnetic field is about one to two Gauss depending on your location on the planet. After demagnetizing materials, the residual magnetism will be around this value. The field strength will never drop to 0 Gauss.

Metals that are not, or are only weakly, magnetically conductive (including stainless steels) can become magnetically conductive after, for example, welding, bending or machining. These materials and tools can become magnetized again after demagnetization if they are exposed once more to a magnetic field. Demagnetization does not change the material’s structure, so despite demagnetization it remains more susceptible to magnetization than the original base material.

# 5 Product information

## 5.1 Overview drawing




[1] Identification plate
[2] Contact surface
[3] Transport direction sticker
[4] Transport bracket
[5] Power cable (without plug)

## 5.2 Scope of delivery

Check the shipment immediately upon delivery for:

- Possible damage and/or shortcomings as a consequence of transport. In the event of damage, ask the carrier for a transport damage report.

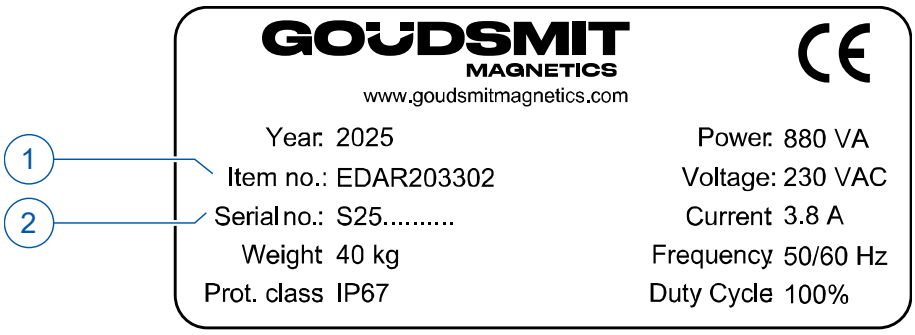
- Completeness.

**NOTICE**

In the event of damage or incorrect shipment, contact Goudsmit Magnetics immediately. The contact details are provided on the title page of this manual.

## 5.3 Identification plate

The following identification data are shown on the device. Always keep the identification data clean and legible. Always provide the item number [**1**] and serial number [**2**] when ordering spare parts, requesting service or reporting a malfunction.




## 5.4 Temperatures

The ambient temperature at the installation location must be between -10 and +40 °C.

During demagnetizing, the underlying frame may also become warm.

# 6 Transport and installation

**WARNING**

**Note**

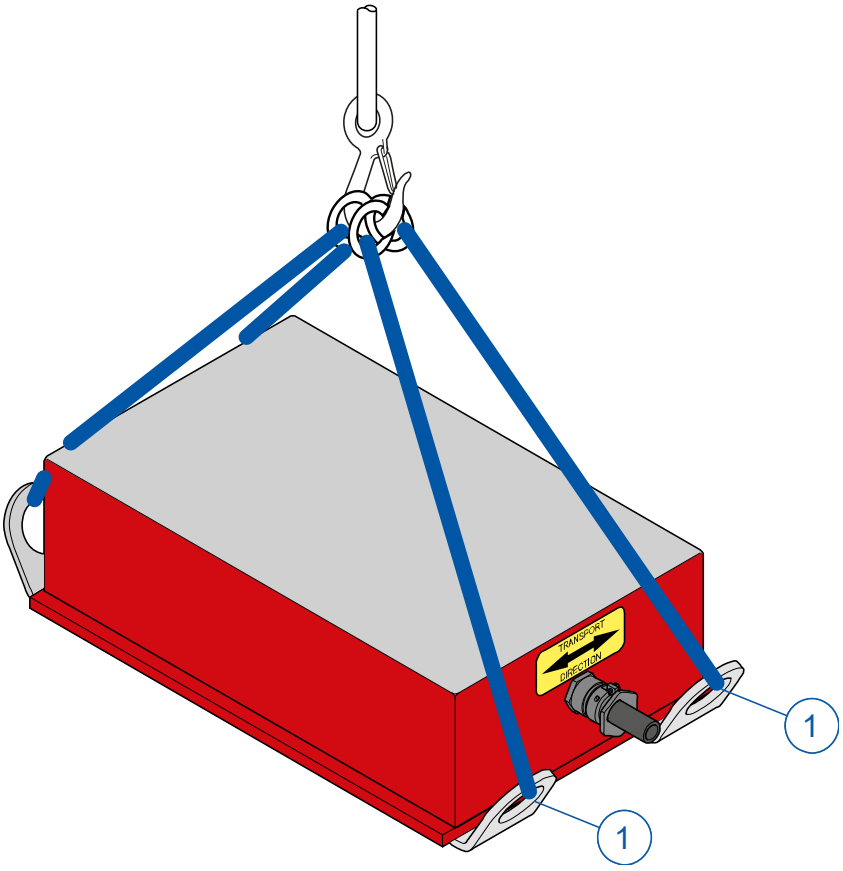
Avoid impacts during transport to prevent damage.
Heavy shock loads can cause internal fracture of the polyurethane.

**NOTICE**

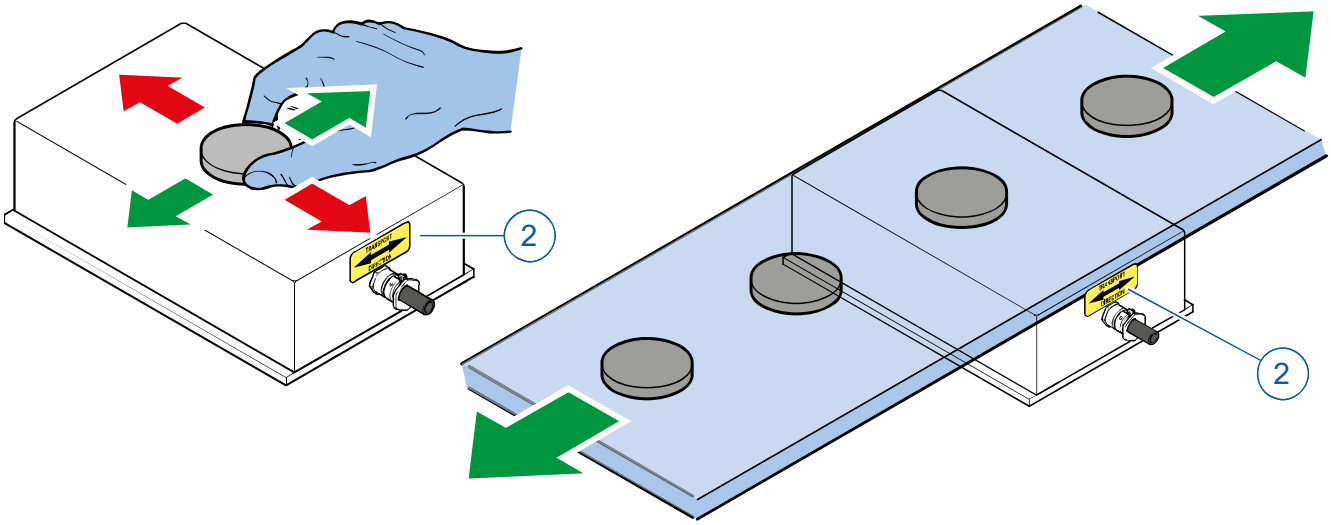
Take the following precautions:

- ▶ Work safely, provide ample work space and use dependable scaffolding, ladders and other tools so the device can be installed without any risks.
- ▶ Only qualified personnel may work on the device.
- ▶ Ensure that there is sufficient clearance around the installation to install the device in the installation/structure and for operation, inspection and maintenance work to be carried out.
- ▶ Use only lifting/hoisting and transport equipment in good condition, and comply with the equipment's rated load capacity.

The device is delivered in a wooden crate.




- Open the crate and attach lifting slings or chains to the transport brackets [**1**]. Use a suitable lifting/hoisting arrangement that supports the weight of the device.
- Lift the device out of the crate evenly.




- Install the device on a non-ferromagnetic surface for manual demagnetizing, or beneath a conveyor in, for example, a production line.

**NOTICE**

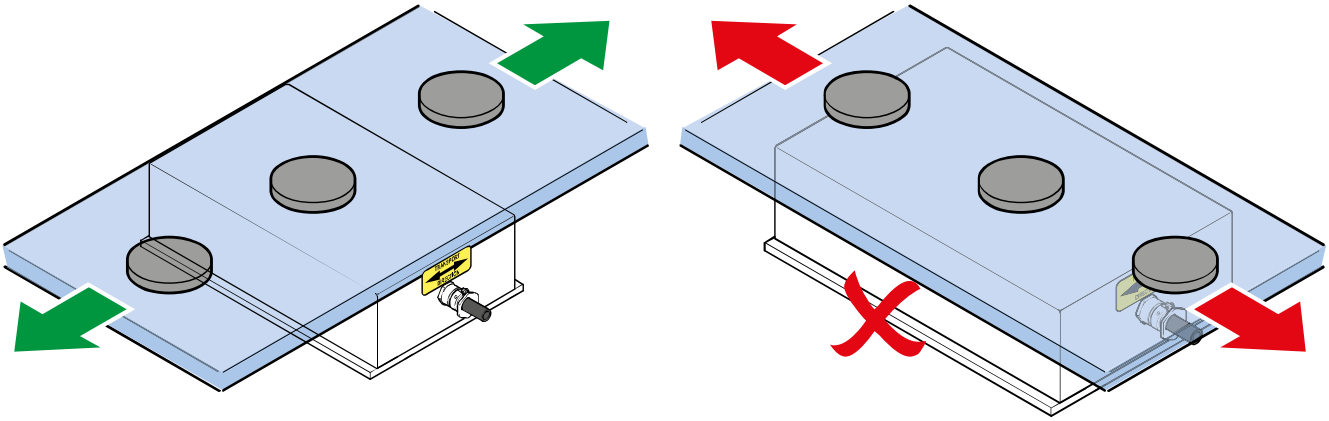
Observe the specified transport direction for demagnetizing during installation. For the correct transport direction, see the sticker [**2**] on the device.

The device is supplied as standard with a moulded power cable without a plug. Have a qualified electrician fit a suitable plug to the power cable or connect it to your installation.

# 7 Device description

## 7.1 Operation

Magnetic neutralization is achieved by applying a strong demagnetizing field (opposing magnetic field) generated by an electromagnetic coil inside the device.



The material to be demagnetized must be guided as close as possible, and as evenly as possible, across the device's contact surface.

When using a conveyor, the width of the plate demagnetizer must match the belt width.

The conveyor installation located under the table must not contain ferromagnetic (see chapter Magnetism [▶ 7]) parts that could adversely affect the plate demagnetizer.

**NOTICE**

During demagnetizing, the product's position as it is conveyed can affect the result. Test to determine which position gives the best outcome.

## 7.2 Intended use

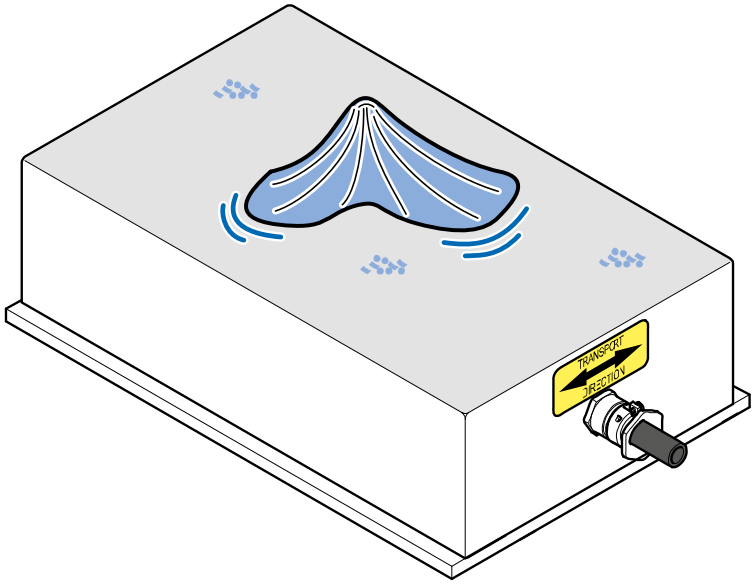
Plate demagnetizers are suitable for demagnetizing flat or single-sided magnetic products with a material thickness up to 10 mm. The IP67 sealed plate demagnetizers are designed specifically for, among others, grinding shops (wet grinding), galvanizing companies, machine building and packaging machines.

For material thicknesses > 10 mm, a low-frequency demagnetizing tunnel is required to achieve sufficient depth of demagnetization.

# 8 Maintenance and inspection

## 8.1 Cleaning

Magnetic systems attract dust and ferromagnetic particles. Regularly check that the device's contact surface is not contaminated. A clean magnet is considerably more effective.




The best way to clean all parts is with compressed air and/or a soft cloth. It is also possible to clean more thoroughly with special cleaning fluids that do not damage the materials.

- Always inform operating personnel of scheduled inspections, maintenance, repairs and in the event of faults.
- Ensure that the device is externally clean. Remove dust, dirt and particles from the device as appropriate.

# 9 Troubleshooting

Use the following table to search for faults, determine the possible cause and find the remedy. In the event of a fault that is not in the table, contact Goudsmit Magnetics customer service.

| Problem | Possible cause | Solution |
|---|---|---|
| Demagnetizing device cannot be switched on. | Supply voltage has been lost. | Find the cause and solve the problem. If applicable, then reset the undervoltage release in the control cabinet or replace the blown fuse(s). |
| Demagnetizing function does not work. | Demagnetizing function is not switched on. | Switch on the demagnetizing function. |
| | Undervoltage release (on the standard control cabinet) or fuse has switched the device off due to a short circuit or excessive temperature from prolonged overload (excessive supply voltage/current). | Allow the demagnetizing device to cool. After cooling, the demagnetizing function can be switched on again. |
| | | Find the cause and remedy it. Then – on the standard control cabinet – reset the undervoltage release and/or replace the blown fuse(s) in the control cabinet. |

# 10 Service, spare parts, storage and dismantling

## 10.1 Customer service

Have the following information to hand when contacting customer service:

- Data from the identification plate.
- Type and scope of the problem.
- Presumed cause.

## 10.2 Spare parts

The high quality of the products from Goudsmit Magnetics means that the device is highly reliable in operation.

However, if a particular part needs to be replaced, you can order a new one by providing the type number listed on the identification plate.

## 10.3 Storage and disassembly

**Storage**

If you do not intend to use the magnet product for an extended period of time, we recommend placing the device in a dry, safe place, and applying preservative to the vulnerable parts, if necessary.

**Disposal/recycling**

When dismantling the magnet product, take into account the materials from which the various parts are made (magnets, iron, aluminium, insulating material, electrical components, etc.). Preferably have this carried out by a specialist company and always observe local rules and standards for the disposal of industrial waste.

## Notes

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