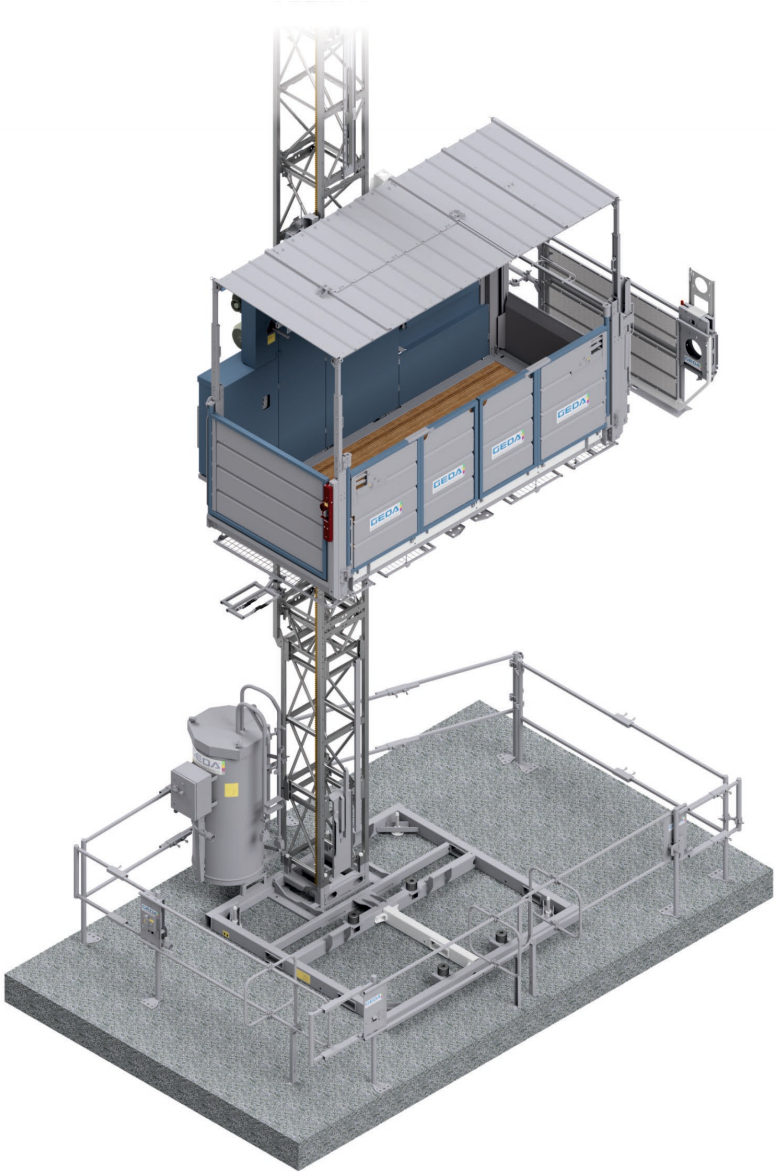
# Operating Manual



GEDA® 2500 Z/ZP

## Construction Hoist / Transport Platform

For passengers and materials

**Original Operating Manual**

# EU Declaration of Conformity

The manufacturer:
GEDA GmbH
Mertinger Strasse 60
86663 Asbach-Bäumenheim
hereby declares that the machine

| | | | |
|---|---|---|---|
| Designation: | Construction Hoist / Transport Platform (for temporary use on construction sites by authorised persons) | | |
| Type: | 2500 Z/ZP | Serial number: | 25T0... / 000250 |
| Year of construction: | Refer to name plate on the machine | | |

is in compliance with all pertinent provisions of the following directives at the time of being put on the market.

| Directives: | | Conformity evaluation procedures applied: |
|---|---|---|
| 2006/42/EU | Machinery Directive | Appendix IX |
| 2014/35/EU | Low Voltage Directive | Appendix IV |
| 2014/30/EU | EMC Directive | Appendix II |
| 2000/14/EU | Noise Emissions Directive | Appendix V |

Applied (harmonised) standards:
EN ISO 12100:2010, EN60204-1/32:2018, sections from: EN12158-1:2021, EN16719:2018

| EC Type test certification procedure: | | |
|---|---|---|
| Type test certification | | EG-MRL 391-1 |
| European notified test site | 0036 | TÜV SÜD Industrie Service GmbH<br>Westendstrasse 199<br>80686 Munich |

This declaration of conformity is valid for machines manufactured from the date of the type test certificate.

This EU conformity declaration becomes null and void if any changes are made to the aforementioned machine that have not been authorised by the manufacturer.

The authorised representative for technical documentation is the signatory. For address refer to manufacturer.

Asbach-Bäumenheim
Date 18.09.2023

Johann Sailer
CEO GEDA GmbH

(Date of the type test certificate)

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# 1 General information

## 1.1 Information on the operating manual

This operating manual is an essential aid to operating the machine **successfully and hazard-free** (refer to chapter 2.1 Residual risks, page 20).

This operating manual contains important instructions on how to operate the machine **safely, correctly and efficiently**. Compliance with these instructions helps to avoid hazards and increases the reliability and service life of the machine.

The operating manual must be **available at the machine at all times** and must be read and applied by every person commissioned to work on/with the machine, e.g.:

- operation, fault elimination during work, disposal of operating materials and auxiliary supplies,
- assembly, maintenance (servicing, general maintenance, repair) and/or transport.

You will come across a series of illustrations and symbols while reading this manual. These are intended to help you navigate and understand this manual. The different meanings are explained below.

| Text format | Meaning |
|---|---|
| **Bold type** | Emphasises particularly important words/sections |
| • List | Identifies lists level 1 |
| – List | Identifies lists level 2 |
| (brackets) | Item numbers |
| ➢ Task instruction | Task instructions for personnel. Always given in chronological order |

**Images**

The illustrations used refer to a specific machine type. They may only constitute a schematic representation of other machine types. The fundamental function and operation are not affected by this.

The structural elements in this operating manual appear as follows and have the following meaning:

| | | | |
|---|---|---|---|
| 1 | ... | 5 | Chronological sequence of work steps in illustrations |

**⚠ DANGER**

**Type and source of the hazard: Danger to life**
Consequence: Death/serious injury
Probability: imminent
➢ Measure for preventing the hazard

**⚠ WARNING**

**Type and source: Risk of injury**
Consequence: Serious injury
Probability: possible
➢ Measure for avoiding

**⚠ CAUTION**

**Type and source: Risk of injury**
Consequence: Minor injury
Probability: possible
➢ Measure for avoiding

**ATTENTION**

**Type and source: Damage to the machine**
Consequence: Property damage
Probability: possible
➢ Measure for preventing the damage

**Safe working**

**Type and source: Failure to comply with health and safety regulations**
Consequence: Risk for life and limb
Probability: possible
➢ Observe these instructions and proceed with caution.

**Indicates information on using the machine economically or instructions for correct working procedures.**

## 1.2 Abbreviations

The following abbreviations may be used in the manual.

| Abbreviation: | | Abbreviation: | |
|---|---|---|---|
| Max. | maximum | Fig. | figure |
| min. | minimum | Nm | Newton metre |
| Min. | minutes | km/h | kilometres per hour |
| etc. | et cetera | mph | miles per hour |
| poss. | possible | incl. | including |
| e.g. | for example | if nec. | if. necessary |
| ml | Millilitre | i.e. | that is |
| mm | Millimetre | reg. | regarding |
| °C | degrees Celsius | RH | relative humidity |
| °F | degrees Fahrenheit | approx. | approximately |
| ft. | feet | Ø | diameter |
| ft/m | feet per minute | ® | registered trademark |
| m/min | metres per minute | © | copyright |
| in. | inch | TM | trademark |
| . | | % | per cent |
| lbs. | pounds | ‰ | per mil |
| lbf.-ft | pounds per feet | $L_{PA}$ | sound pressure level |
| kg | kilogramme | $L_{WA}$ | noise capacity level |
| L | litre | > | greater than |
| gal. | gallons | < | less than |
| kip. | kilopound | ± | plus/minus |

## 1.3 Identification data

| | |
|---|---|
| Machine type: | GEDA 2500 Z/ZP |
| Serial number: | 25T0... / 000250 |
| Year of manufacture: | refer to name plate |
| Documentation version: | 2022-11 |

## 1.4 Manufacturer's name and address

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86663 Asbach-Bäumenheim
Tel.: +49 (0)9 06 / 98 09-0
Fax: +49 (0)9 06 / 98 09-50
E-Mail: info@geda.de
Web: www.geda.de

**Representatives of the manufacturer**

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|---|---|
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| **U.S. subsidiary** | **Korea Subsidiary** |
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Violations are an offence and incur an obligation to pay compensation. All rights to exercise industrial property rights are reserved by GEDA .

## 1.6 Patents

Some components in our machines are protected by patent rights. To find out how to request information about these, refer to http://www.geda.de/.

## 1.7 Instructions for the operating company

This operating manual is an essential component of the machine. The operating company must ensure that operating personnel are **informed** about these guidelines.

The operating company must supplement the operating manual with **operating instructions** based on existing national regulations for accident prevention and for the **protection of the environment**, including information regarding supervisory and reporting duties that take account of company-related specifics, e.g. with reference to work organisation, work procedures and the personnel employed.

In addition to the mandatory **regulations for accident prevention and industrial safety** that apply both in the country of use and at the place of use, accepted professional rules for safe and competent working must also be observed.

The operating company must ensure that operating personnel wear **personal protective equipment** appropriate to the local conditions.

**First aid equipment** (first aid kit, etc.) must be kept within reach!

The operating company/user of the machine **must not make any changes, additions or modifications** to the machine that could impair safety without permission from the manufacturer! This also applies to installing and adjusting safety devices as well as welding on load-bearing components.

Any **replacement and wearing parts** that are used must correspond to the technical requirements stipulated by GEDA . This is ensured with **original replacement parts**.

Only employ **qualified and/or trained personnel** for the tasks described in this manual.

The operating company clearly defines the responsibilities of the personnel for operation/installation/maintenance.

The operating company is obliged to instruct all people authorised to use the machine in the correct way to handle the machine based on their respective range of activities and responsibilities using practical exercises, before they use it for the first time.

This **training** must be documented and **repeated at regular intervals**.

The legally permissible minimum age must be observed!

## 1.8 Intended use

The 2500 Z/ZP is a rack-and-pinion hoist constructed vertically that is suitable for temporary use at construction sites.
Any other locations or intended uses require written approval from the manufacturer.

The 2500 Z/ZP is a construction material hoist and a transport platform that is temporarily erected and

- which may only be operated after the landing level safety gates are installed at each transfer point to the building or scaffolding
- which may only be operated at a wind speed of up to 72 km/h (20 m/sec. wind force 7-8 according to the Beaufort scale)
  - which must have its platform parked on the ground and taken out of operation at higher wind speeds.

**As a construction material hoist**

- which is intended exclusively for putting up scaffolding and for transporting items and materials during construction work
- which may only be operated from outside the cordoned-off and signposted hazard area using the ground control and/or operated from the electric modules on the landing level safety gates

**As a transport platform for carrying persons**

- for transporting materials and **max. 7 persons** which can exit the platform at installed and secured transition points
- which may only be used by trained personnel (platform operator) at construction sites
- which can only be operated from the platform with dead man's control; (operation is not possible from other control locations)
- which can be stopped at any position (e.g. to unload bulky components over the base enclosure)

**Transport platform equipped for operation as per EN 16719**

- **roof** over the complete platform (refer to chapter 4.5.1 Roof, page 89).
- **landing level platform access** (refer to chapter 4.3.3 Platform access landing level, page 54)
  - as a barrier with electromagnetic lock
- with **underrun protection** installed under the platform [option] (refer to chapter 4.5.2 Underrun protection, page 90), a **cordon** is sufficient for securing the ground station (refer to chapter 4.3.1.1 Cordon, page 43) to protect persons and the machine.

**or**

- a **base enclosure** [option]
  - 1.10 m with limit-switch monitored barrier (refer to chapter 4.3.1.2 1.10 m base enclosure with barrier (option), page 44) or
  - 2.00 m with sliding door (refer to chapter 4.3.1.3 Sliding door for 2.00 m base enclosure (option), page 45)
- **landing level safety gate** with filler plate closed (refer to chapter 4.3.4 Securing loading and unloading points, page 58).

The instructions, (refer to chapter 3 Technical data, page 27) must be observed and adhered to.

Any other use or any use going beyond this is not considered proper use.

**The operating company/user of the machine is solely liable** for any damage resulting from this. This applies equally to any unauthorised changes to the machine.

### 1.8.1 Assembly, service/maintenance specialist

A person who, due to qualified professional education, training and experience, is able to recognise risks and potential hazards during assembly/maintenance/repair work on the machine and subcomponents and can rectify these by introducing appropriate measures.

### 1.8.2 Operating personnel

The machine may only be operated by persons who, based on their training, knowledge and practical experience, can ensure proper handling.

These persons must

- have been appointed by the operating company
- have been appropriately instructed and informed about the risks
- be familiar with the operating manual
- observe national regulations.

### 1.8.3 Improper use

The 2500 Z/ZP

- is not designed for permanent installation
- must not be set up to be free-standing (without anchoring)
- must not be operated by persons without instruction on the machine or by children The persons must be familiar with the operating manual.

**Consequences of improper use of the machine**

- Danger to life and limb of the user or a third party.
- Damage to the machine and other objects.

# 2 General safety information

The machine has been designed and built according to the state of the art and recognised safety rules.

Nevertheless, hazards for personnel or third parties and/or damage to machinery and other tangible assets can occur during use, e.g. if the machine:

- is operated by untrained or uninstructed personnel,
- is not used for the intended purpose,
- is assembled, operated and serviced inappropriately.

Attached notices and warning signs must be observed!

**Consequences of failure to comply with safety instructions**

Failure to comply with safety instructions can result in hazards for personnel as well as for the environment and the machine. Failure to comply can lead to any claims for damages becoming invalid.

## 2.1 Residual risks

Residual risks remain from handling the machinery even when all safety conditions are complied with.

Anyone who works on and with the machine must be aware of these hazards and follow instructions that prevent these residual risks leading to accidents or damage.

- Do not remove any safety labels; replace any safety instructions that have become illegible.
- Hazard from improperly secured loads falling.
- Hazard when entering and leaving the platform.
- Hazard from damage to the mast sections, anchors or base unit.
- Hazard when working on the electrical system.
- Hazard from malfunctions in the control system.
- Hazards from uncoordinated working practices.
- Risk to persons by operating the platform with no cordoned- off area/base enclosure.
- Hazard from high wind speeds > 72 km/h.

## 2.2 Safety instructions for operating personnel

The operating manual must be kept within reach at all times **at the location where the machine is used**.

The machine may only be used in a technically flawless condition, **in accordance with the intended use, in a safety conscious manner,**

**with awareness for the hazards** and in compliance with this operating manual! In particular, faults that could impair safety must be eliminated immediately!

In addition, the machine may only be operated when all **safety devices are installed and functioning**!

Check the machine for externally identifiable damage and defects **at least once each working day**! Immediately report any changes (including changes to the operating behaviour) to the office/person in charge. If necessary, shut down and secure the machine immediately! The **responsibilities** for different jobs within the context of operation and maintenance of the machine must be clearly defined and adhered to. This is the only way to avoid mistakes, especially in hazardous situations.

The relevant **rules for the prevention of accidents,** as well as other, generally recognised health and safety rules must be adhered to.

The hoist operator is obligated to wear **personal protective equipment** appropriate to the local conditions.

**Switch-on and shut-down procedures, including emergency shut-down**, must be observed in accordance with the operating manual for all work that affects operation and for conversions and adjustments to the machine and its safety devices.

## 2.3 Safety instructions for transport

Immediately report **transport damage** and/or **missing parts** to the supplier.

During transport tasks, wear a **safety helmet, safety shoes and protective gloves**!

**Never walk below suspended loads**!

Only use **appropriate, standardised and tested lifting devices** (forklifts, cranes) and load attachment gear (lifting beam, round slings, lifting straps, rope slings, chains) for transport at the assembly site.

When selecting lifting and slinging equipment, always take into account the **maximum suspended loads!**

**Dimensions and weights** , (refer to chapter 3 Technical data, page 27).

Only load and transport **the carefully dismantled, packed and lashed machine**.

Always ensure that the machine is transported **without being knocked or jolted**. Ensure that the machine is stable during transport. Support the platform before strapping it down for transport.

Observe the **symbols on the packaging**.

Only attach gear to the **designated attachment points**.

Always **secure transported loads against falling or tipping over**!

The machine must only be transported/installed on foundations with sufficient load capacity.

Ensure that stable balance is maintained when transporting with forklift trucks.

## 2.4 Safety instructions for operation

Only operate the machine in accordance with the operating manual, **when it is in full working order, and in a safety and hazard-conscious manner**.

If **work is interrupted, switch the machine off at the main switch** and secure it with a padlock against being switched on again.

Fundamentally, the machine must be **secured against unauthorised use** (disconnect from power)!

In situations that present a **risk to the operating personnel** or the machine, shut down the machine by pressing the **EMERGENCY STOP** button.

No one is allowed to stand under the machine. Ensure that the hazard area is suitably cordoned off at the customer's site. (Install cordoned off area or base enclosure.)

The machine must not be used as steps or a climbing aid. Only use tested and stable steps/climbing aids. Keep steps/climbing aids free of dirt and soiling.

Protection to prevent persons from falling must be provided at loading heights above 2.0 m. (Install landing level safety gates.)

Move load platform down and shut down machine at wind speeds of >72 km/h. (Wind force 7-8, wind breaks branches off trees, makes walking very difficult)

**All persons in the hoist must comply with the hoist operator's instructions.** They must not lean out over the sides of the platform or step across material being transported.

## 2.5 Safety instructions for maintenance and troubleshooting

**Operating personnel** must be **informed** about how to carry out special work and repair work before starting.

**Deadlines** that are stipulated or stated in the maintenance manual for recurring **tests/inspections** must be adhered to.

The **maintenance area** must be **cordoned off** extensively as required!

Before carrying out any maintenance work on the machine, always

- unload it,
- switch it off at the main switch.

All **maintenance and repair work** is only permitted with the **main switch turned off** or **with the mains plug disconnected**. Manual intervention while the machine is running can lead to serious injuries and is therefore prohibited. If it is necessary to **switch the machine on during** such work, this must only be done while **complying with special safety measures**.

**For further instructions on maintenance, maintenance intervals and servicing, refer to the maintenance manual.**

If the machine has been completely shut down for these tasks, it must be secured against being switched on unintentionally:

- Actuate the **EMERGENCY STOP** button
- **Lock** the **main switch** using a shackle lock and
- attach a **warning notice** to the switch box (main switch).

Any faults that could impair safety must be rectified immediately.

Workshop **equipment that is suitable for the specific work** is absolutely necessary for carrying out **maintenance and inspection work**. When carrying out maintenance tasks at greater heights, a fall protection system must be worn! Keep all handles, railings and the platform free from dirt and contamination.

When working below the platform, secure it using appropriate means (e.g. bolts, mast clamps)

Before starting service/repair tasks, **clean** any oil, operating fluids, contamination and maintenance products from the machine, paying special attention to connections and threaded connections. Do not use abrasive cleaning materials. **Screw connections that were released** during maintenance and inspection work must always be tightened again using the necessary **torques**!

Do not change, remove, bypass or bridge safety devices.

If it is necessary to dismantle safety devices during maintenance and repair work, the safety devices must be installed and checked immediately after completion of the maintenance and repair tasks!

Do not make any changes, additions or modifications to the machine. This also applies to the installation and adjustment of safety devices such as limit switches.

Immediately replace damaged or detached information and warning signs, as well as safety labels.

Ensure that operating and auxiliary materials, as well as replaced parts, are disposed of safely and in an environmentally friendly manner (refer to chapter 6 Disposal, page 113).

**The aforementioned safety measures also apply to troubleshooting.**

## 2.6 Safety when working on the electric system

If there are **faults on the electrical system** of the machine, it must be **shut down immediately using the main switch** and secured with a padlock or the mains plug must be disconnected!

Work on the electrical equipment of the machine must only be carried out by **qualified electricians** working in accordance with electrical engineering regulations! Only professional electricians may access the electrical system of the machine and carry out work on them. **Always keep the switch boxes closed** whenever they are left unattended.

**Never work on live parts! System parts on which inspection, maintenance or repair work** is to be carried out must be **disconnected from the mains power**.
Operating equipment that has been disconnected must be secured against being switched back on unintentionally or automatically (lock away fuses, block isolating switches, etc.). The disconnected electrical components must first be tested to ensure they are voltage-free, then earthed, short-circuited and isolated from neighbouring live components.

If **tasks have to be carried out on live components** (only in exceptional circumstances), an additional person must be present to operate the **EMERGENCY STOP** button or main switch in the event of an emergency. Use only insulated tools!

During repairs, ensure that **design features** are not **modified** so that they have a negative influence on safety. (e.g. creeping distances, clearances and distances must not be reduced by insulation).

Fault-free **earthing** of the electrical system must be ensured by a **protective earth system**.

# 3 Technical data

## 3.1 Operating and environmental conditions

The machine may only be operated when the following operating and environmental conditions are adhered to:

- Storage in dry rooms, in order to prevent corrosion.
- No jolts or vibrations.
- No abrasive, corrosive substances.
- The machine must be protected against pest damage (insects, rodents, etc.).
- Before transport/storage, the machine must be cleaned and checked for signs of damage.

| | | |
|---|---|---|
| Temperature range: | minimum | - 20 °C |
| | maximum | +40 °C |
| Humidity (relative): | | 80 % RH |

Wind speed:

| | | |
|---|---|---|
| Operation/maintenance/repair | maximum | 72 km/h |
| Assembly: | maximum | 45 km/h |

It may be necessary to cease or prohibit operation of the machine under extreme weather conditions, even if the operating and environmental conditions fall within the bounds of those stated. For example, if heavy frost and a storm occur together. In these cases, the operating company must provide appropriate regulations.

**Do not use during storms (lightning)!**

**Atmosphere at the location of use during material transport**

When transporting material, this must not lead to a concentration of abrasive/corrosive substances and of explosive fine dusts. If this cannot be safely excluded, the corrosion protection and/or the functional reliability of the electrical components must be checked at regular intervals and they should, if necessary, be replaced. Fine particulate matter must be removed.

**Atmosphere at the location of use during passenger transport**

The atmospheric composition on-site must be suitable for people to remain for longer periods in the area. In particular, a reduction in the oxygen concentration as a result of displacement or consumption must be prevented. The legal limit values for pollutant concentrations/aerosols and dust in the workplace must not be exceeded.

## 3.2 Emissions

| | |
|---|---|
| Sound pressure level: | < 78 $L_{PA}$ |

## 3.3 Tightening torques

### Special mechanical screw connections with torque control

| Mast - elements to one another | | |
|---|---|---|
| Tightening torque | | |
| 300 Nm | 220 lbf ft | |
| Width across flats (AF) 30 mm | | |

| Couplings | | |
|---|---|---|
| Tightening torque | | |
| 50 Nm | 37 lbf ft | Couplings 1 ½" |
| 100 Nm | 74 lbf ft | Couplings 2 " |

### General mechanical fittings without torque control

| Tightening torques (All details refer to screws with strength class 8.8) | | | | | |
|---|---|---|---|---|---|
| M8 | 25 Nm | 18 lbf ft | M18 | 300 Nm | 221 lbf ft |
| M10 | 49 Nm | 36 lbf ft | M20 | 425 Nm | 313 lbf ft |
| M12 | 86 Nm | 63 lbf ft | M22 | 575 Nm | 524 lbf ft |
| M14 | 135 Nm | 100 lbf ft | M24 | 710 Nm | 524 lbf ft |
| M16 | 210 Nm | 159 lbf ft | M30 | 1445 Nm | 1066 lbf ft |

### Electrical screw connections

| Tightening torques | | | | | |
|---|---|---|---|---|---|
| M4 | 1.2 Nm | 0.88 lbf ft | M12 | 15.5 Nm | 11 lbf ft |
| M5 | 2 Nm | 1.47 lbf ft | M16 | 30 Nm | 22 lbf ft |
| M6 | 3 Nm | 2.21 lbf ft | M20 | 52 Nm | 38 lbf ft |
| M8 | 6 Nm | 4.42 lbf ft | M24 | 80 Nm | 59 lbf ft |
| M10 | 10 Nm | 7.37 lbf ft | M30 | 150 Nm | 110 lbf ft |

## 3.4 Electrical connected loads

A construction site distribution cabinet (in accordance with IEC 60439-4:2005) with a

- 63 A fuse protection of the supply point and a
- residual current device (RCD)

are required.

**Base unit**

| | |
|---|---|
| Mains connection | 380 - 480 V / 50 - 60 Hz / 3 Ph/PE |
| Fuse protection by customer | 3 x 63 A slow-blow fuse |
| Protection rating | IP 54 (NEMA 3) |

**Drive**

| | |
|---|---|
| Voltage / Frequency | 380 V / 67 - 96 Hz |
| Power | 2 x 12.5 kW / 25 kW) |
| Current consumption | 2 x 29 A / 58 A) |
| Duty cycle | S1 (100%) |
| Two working socket (in the car) | 230 V / 50 Hz, 6 A |

**Mains connection 32 A**

A mains connection with smaller mains fuses can be configured.

| | |
|---|---|
| Mains connection | 380 - 480 V / 50 - 60 Hz / 3 Ph/PE |
| Fuse protection by customer | 3 x 32 A slow-blow fuse |
| Protection rating | IP 54 |

## 3.5 Speeds

### Lifting speed

| | |
|---|---|
| Construction hoist (External control) | max. 40 m/min. |
| Transport platform (Platform control) | 12 m/min. |
| In the lower safety area (0 - 2.0 m) | 12 m/min. |

### Lifting speed with mains connection 32 A

| | |
|---|---|
| Operation (depending on load) with mains connection 32 A | 38m/min. (at 0 kg)<br>26 m/min. (at 1000 kg) |

### Safety gear FV72-72

| | |
|---|---|
| Triggering speed | 64 m/min. |
| Gravitational acceleration in the car for **EMERGENCY OFF** | < 1 g |

## 3.6 Heights

| | |
|---|---|
| Height of the lower safety area | approx. 2 m |
| Access height (threshold level) | |
| With cable bin | 0,45 m |
| With cable trolley | 0,45 m |
| Installed height (H): | max. 200 m |
| Assembly site elevation:<br>(metres above sea level) | max. 1000 m (3289') |

## 3.7 Mast

**Only original GEDA mast segments may be used!**

| | |
|---|---|
| Tightening torque | 300 Nm |
| Width across [AF] | 30 mm |
| Thermal expansion of mast | 0,012 mm/m [pro 1°C] |

**Galvanised nuts on galvanised retaining strap without lubrication are a precondition for the tightening torque!**

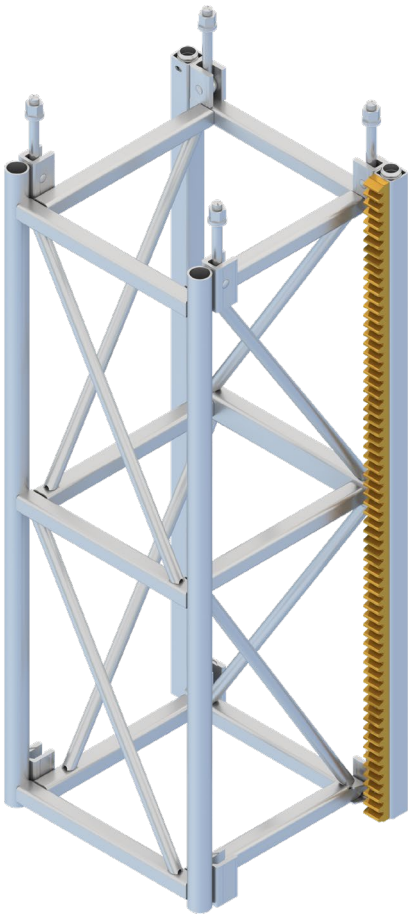


*Fig. 1: VARIO MAST*

(item no. 56800)

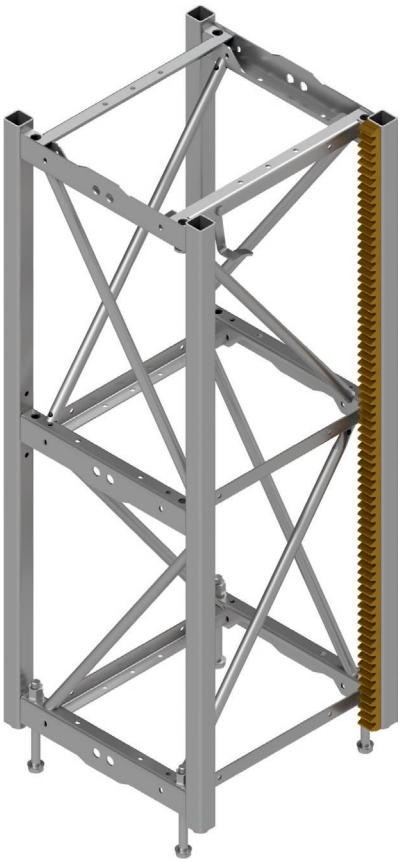


*Fig. 2: S-VARIO MAST*

(item no. 1067872)

For installation with the SVARIO MAST, an adapter mast must be installed directly on the base mast as a transition between the mast systems.

**SVARIO-MAST**

| | |
|---|---|
| Mast connection bolts | 4 x bolts M20 x 220 - 8.8 |
| | 8 x washers 21 s3 D37 |
| | 4 x nuts M20 - 10 |
| Dimensions | 600 mm x 600 mm x 1583 mm |
| Weight | 80 kg |

**VARIO-MAST**

| | |
|---|---|
| Mast connection: | 4 x eye bolts M20 x 180 |
| Dimensions: | 600 mm x 540 mm x 1495 mm |
| Weight: | 86 kg |

**Galvanised nuts on galvanised retaining strap without lubrication are a precondition for the tightening torque!**

### 3.7.1 Adapter mast

Weight: 37 kg

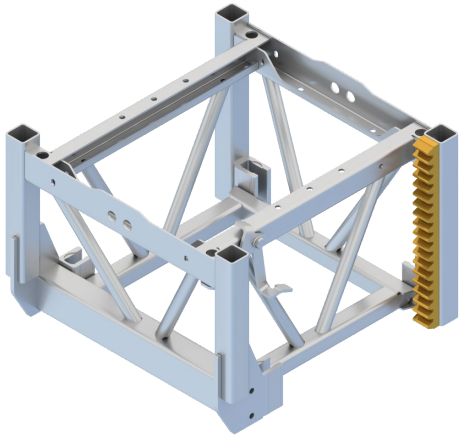


*Fig. 3: Adapter mast VARIO MAST to S-VARIO MAST*

## 3.8 Load capacity, dimensions and weights

### Assembly plank

| | |
|---|---|
| Load capacity | 200 kg |

### Additional assembly platform

| | |
|---|---|
| Load capacity | 100 kg |

### Assembly crane

| | |
|---|---|
| Load capacity | 100 kg |
| Weight | approx. 50 kg |

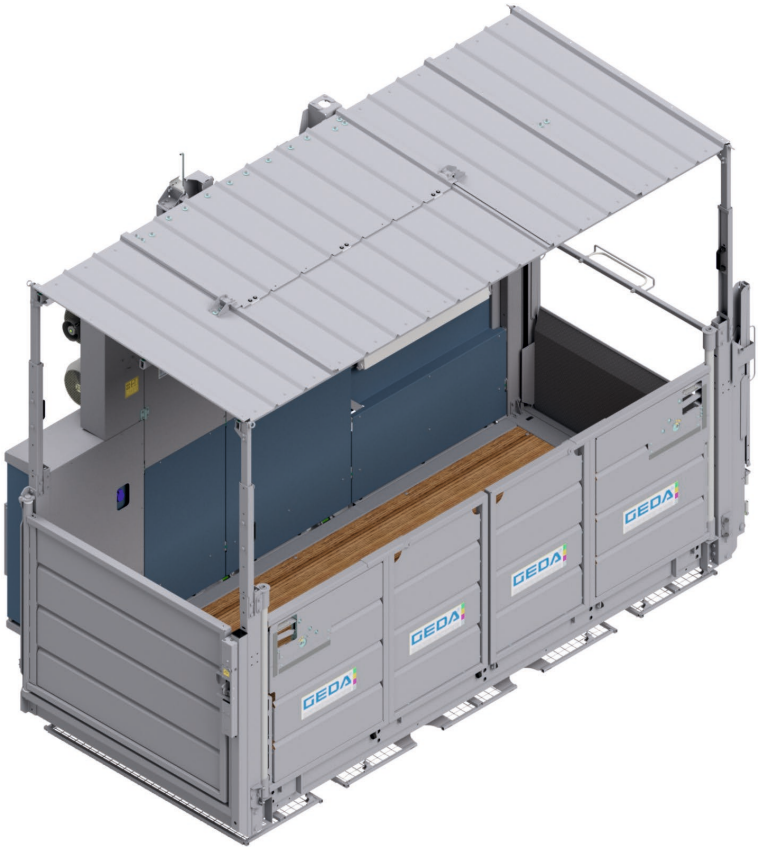



*Fig. 4: Platform*

### Adapter mast with SVARIO-MAST

Load capacity

| | |
|---|---|
| Construction hoist | max. 2500 kg |
| Transport platform | max. 2500 kg / 7 persons<br>2420 kg + 1 🧍<br>2340 kg + 2 🧍<br>2260 kg + 3 🧍<br>2180 kg + 4 🧍<br>2100 kg + 5 🧍<br>2020 kg + 6 🧍<br>1940 kg + 7 🧍 |
| Installation | 1000 kg / 2 persons |

### VARIO-MAST

Load capacity

| | |
|---|---|
| Construction hoist | max. 2200 kg |
| Transport platform | max. 2200 kg / 7 persons<br>2120 kg + 1 🧍<br>2040 kg + 2 🧍<br>1960 kg + 3 🧍<br>1880 kg + 4 🧍<br>1800 kg + 5 🧍<br>1720 kg + 6 🧍<br>1640 kg + 7 🧍 |
| Installation | 1000 kg / 2 persons |

## Dimensions/required space

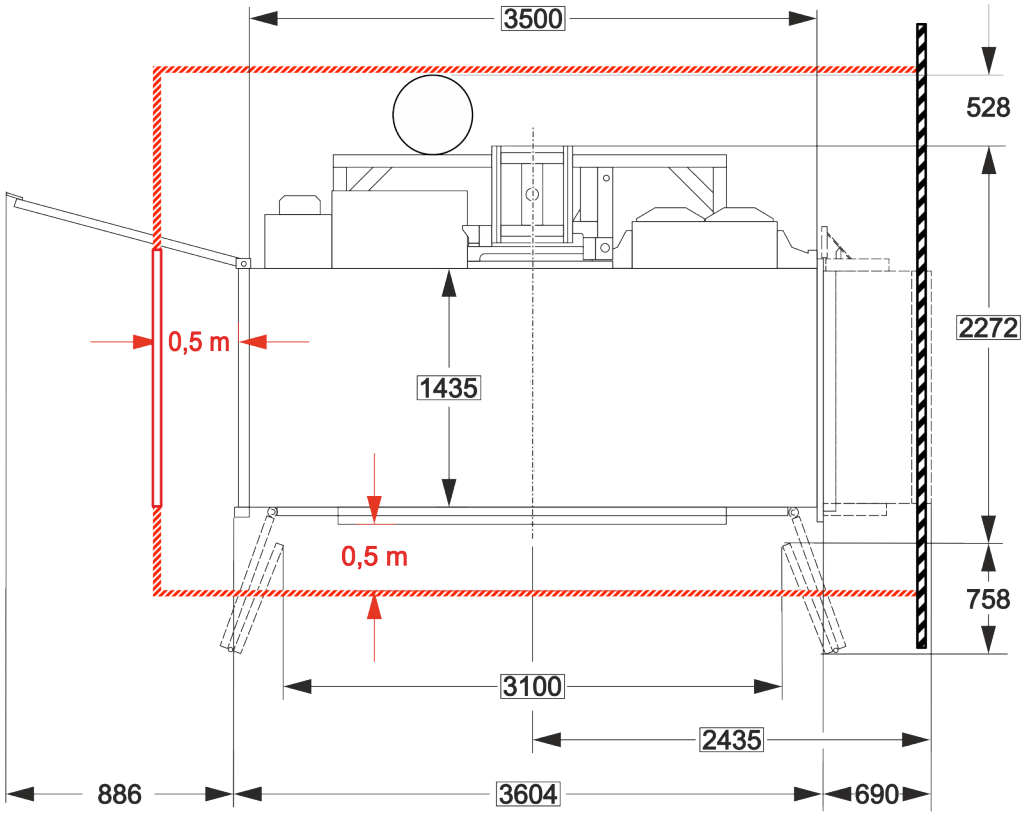



*Fig. 5: Space requirements*

| | |
|---|---|
| Height of platform [internal] | 2.10 m - 2.6 m |
| Height of base unit without roof | 2.95 m |
| Height of base unit with roof | 2.95 m - 3.45 m |
| Number of access points | 1 / 3 x loading |
| | 1 x unloading |

Weights

| | |
|---|---|
| Base unit with platform and accessories | max. 2600 kg |
| Roof | 130 kg |
| Underrun protection | 42 kg |

# 4 Operation

The 2500 Z/ZP may only be operated by a qualified person appointed by the operating company. This person must be familiar with the operating manual, have sufficient experience and be informed about the risks involved in handling lifting gear.

(refer to chapter 1.8 Intended use, page 17)

## 4.1 Safety during operation

- Safety information (refer to chapter 2 General safety information, page 20) also has to be observed.
- Load the platform as centrally as possible, observe the load capacity of the machine.
  - The platform must always be loaded in such a manner that the loading and unloading access points and the control point remain accessible.
  - Position the load carefully on the platform; material that might tend to slip or is higher than the platform, or which could fall over, must be secured (consider the possibility of sudden winds).
  - Do not transport bulky parts that project over the side of the platform.
- Do not stand or work under the platform!
- Do not place objects underneath the platform.
  - Store material at a safe distance of min. 50 cm (20") from moving parts of the machine.
- The landing level safety gates may only be opened once the unloading ramp has been completely opened.
- If the loaded platform stops during operation due to a malfunction, it is the responsibility of the operator to recover the load. - Never leave a loaded platform unattended!
- Operation of the transport platform must cease under the following conditions:
  - at temperatures below -20°C and above +40 °C.
  - in case of damage or other malfunctions.
  - A recurring inspection/intermediate inspection has been missed (refer to the maintenance manual).

**⚠ DANGER**

**Danger to life**

➢ Do not use in case of fire!

### 4.1.1 Special safety instructions for operation as a material hoist

- Operation of the material hoist must take place outside the hazard area.
- The operator must always be able to observe the platform.
- Transporting persons is prohibited!
- Switch to "transport platform" mode to carry out assembly and maintenance tasks.

### 4.1.2 Special safety instructions for operation as a transport platform

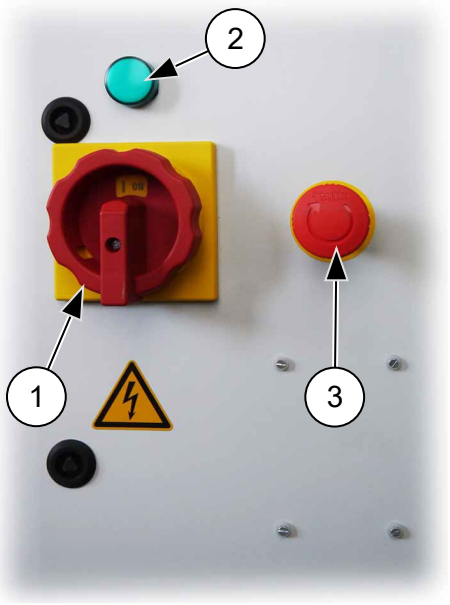
- Operation of the transport platform must be carried out exclusively from the platform control.
- Special care must be taken near ground level.
- A max. of 7 passengers (including the platform operator) may be transported, whereby the corresponding proportion of transported materials must be reduced.
- Comply with the instructions of the platform operator.
- Do not reach or lean out over the sides of the platform.
- Do not step over material that is being transported.

**Instructions for operation as per EN 16719**

| ⚠ WARNING | |
|---|---|
|  | **Risk of injury**<br>Injuries from falling parts or inexpert securing of the hazard area.<br>➢ Passenger transport only with<br>- the roof installed<br>- cordon and underrun protection or<br>- base enclosure 1.10 m with barrier or<br>- 2.00 m base enclosure with sliding door<br>- closed landing level safety gate |

## 4.2 Commissioning

1 Main switch
2 Control light, ready for operation
3 EMERGENCY STOP button




4 Socket [blue] for ground control/manual control
6 Socket for landing level modules on the landing level safety gates or dummy plug during assembly [design depends on the type of landing level module]
7 Mains supply line
8 Trailing cable

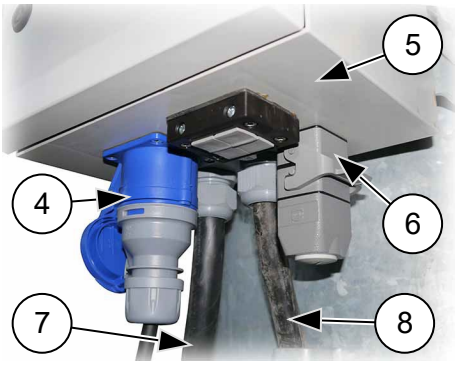



*Fig. 6: Ground station switch box*

### Only with 2.00 m base enclosure with sliding door

5 Socket [grey] for 2 m base enclosure with sliding door (or dummy plug without this base enclosure)

**The connected control of the 2.00 m base enclosure automatically switches the safety functions (stop and warning signal) for the lower safety area.**

➢ Turn the main switch to the "I" position [ON] .
✓ The green control light (2) lights up for confirmation.

### 4.2.1 Safety check before starting work

Perform a test run with an **empty** platform and check that the entire travel path of the platform is clear.

**The platform must immediately stop when**

- an **EMERGENCY STOP** button is pressed.
- the **UP** limit switch is triggered.
- the **DOWN** limit switch is triggered.
- the **EMERGENCY** limit switch is triggered.
- the trolley has reached the end of the mast
- the OFF button on the electric module of the landing level safety gate (if there is one) is pressed.

**The platform must not start if**

- it is overloaded (red control light illuminates).
- the barrier with the unloading flap is open.
- the loading door/ramp is open.
- the assembly guard is lowered.
- the safety gear has been triggered.
- the landing level safety gate is open (only when using the electric module).
- an assembly plank is open.

**Alarm signal function test**

- When descending, the platform must stop at the lower safety area. Then a warning signal must sound for approx. 3 s. (During this time the control function is blocked.) Also, the warning signal must sound each time travel (**UP and DOWN**) below this safety area is initiated.

**The warning signal only sounds when travelling UP if the send-and-call function is activated.**

**The platform must not continue to operate automatically when used as a material hoist, if**

- during downward travel, the platform arrives at the lower safety area.

**When operating the platform as a material hoist close to ground level, it must not be possible to operate it DOWNWARDS from the landing level safety gate. It can only be called upwards.**

## 4.3 Operation/function

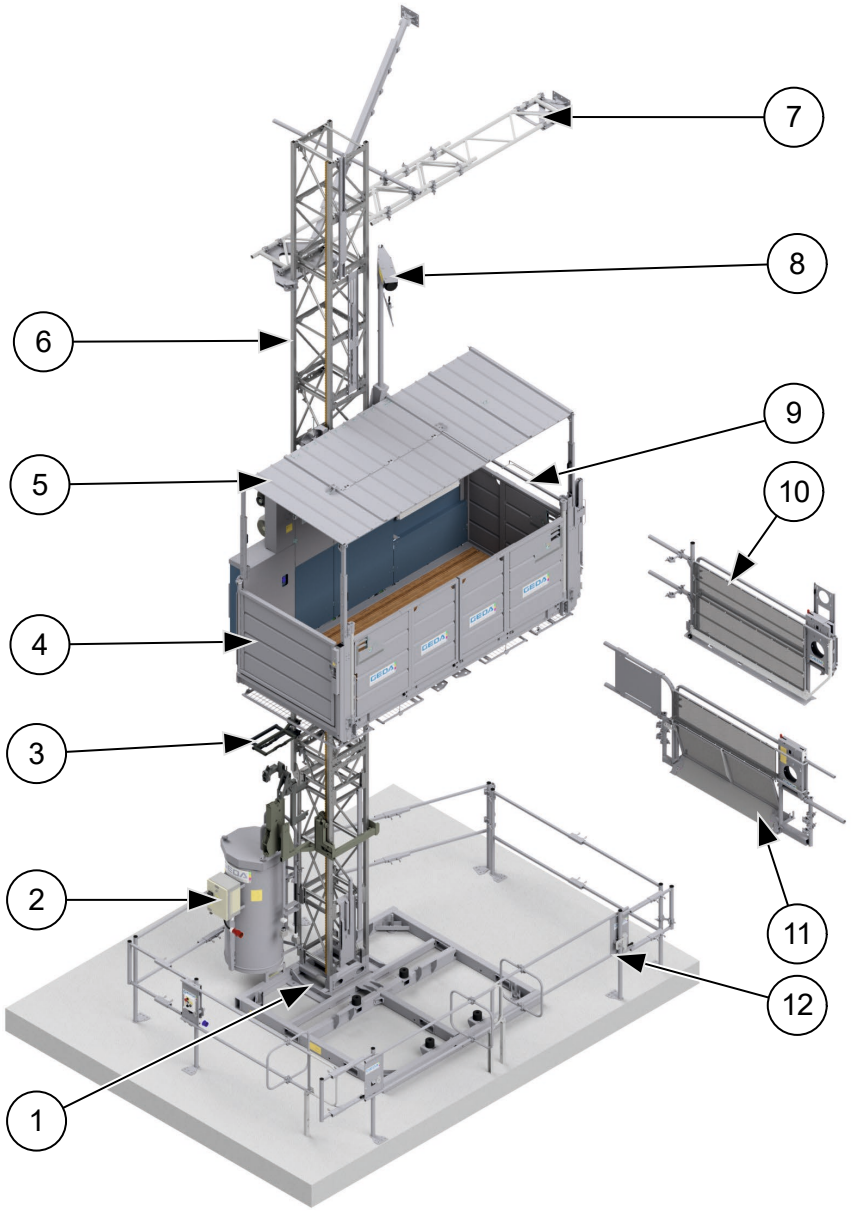



*Fig. 7: Overview*

1 Base mast with foot section
2 Cable bin
3 Cable guide
4 Platform access, ground station (double door)
5 Roof
6 Mast section
7 Mast anchoring
8 Assembly crane (optional)
9 Building platform access (barrier with loading ramp)
10 "Standard" landing level safety gate
11 "Comfort" landing level safety gate
12 Base enclosure

### 4.3.1 Securing the lowest stop position (ground station)

The lowest stop position must be secured and marked to prevent unauthorized access.

| ⚠ DANGER | |
|---|---|
|  | **Danger to life from lowering platform**<br>➢ Never remain inside the cordoned area/base enclosure during operation.<br>➢ Whilst working inside the base enclosure, switch off the main switch and secure it against being switched on. Secure the platform, if necessary, or activate the setting on permanent machines. |

Operating the transport platform as per EN 16719

- If the underrun protection is installed below the platform, a cordon is sufficient for securing the ground station
- Without underrun protection, a 1.10 m base enclosure with a barrier with limit switch monitoring
  or
  a 2.00 base enclosure with barrier with sliding door has to be installed

| ⚠ WARNING | |
|---|---|
|  | **Risk of injury**<br>➢ The distance of the cordon/base enclosure to moving hoist parts must be a minimum of 0.5 m and maximum of 2.0 m. |

#### 4.3.1.1 Cordon

**The cordon may only be used in combination with the installed underrun protection!**

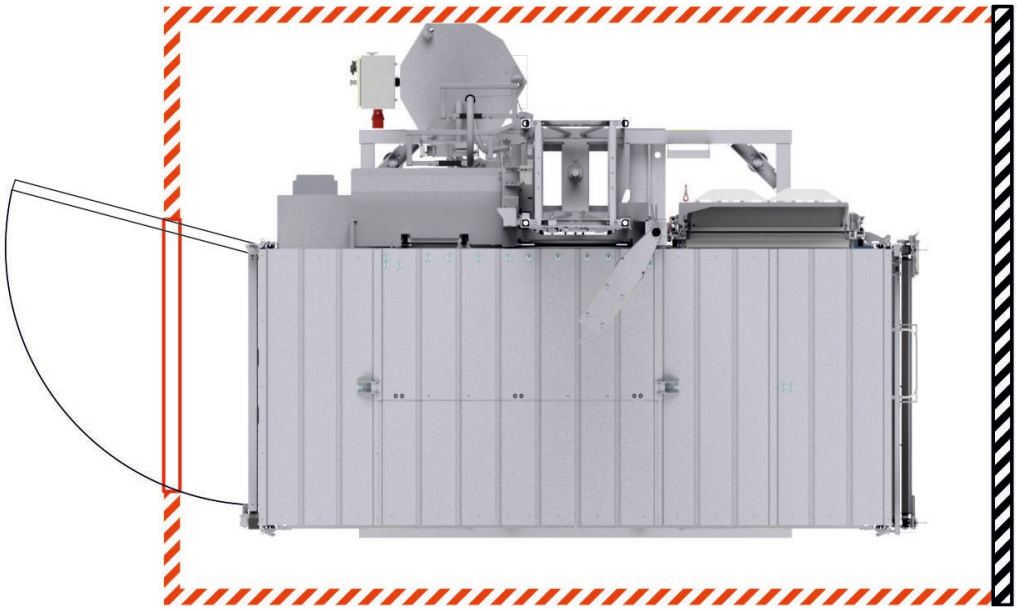


*Fig. 8: Cordon*

Height = approx. 1.10 m

Distance to moving hoist parts = min. 0.5 m

**⚠ WARNING**

**Risk of injury from impaired view**

➢ The operator always has to check whether the travel path to the ground station is clear!

#### 4.3.1.2 1.10 m base enclosure with barrier (option)

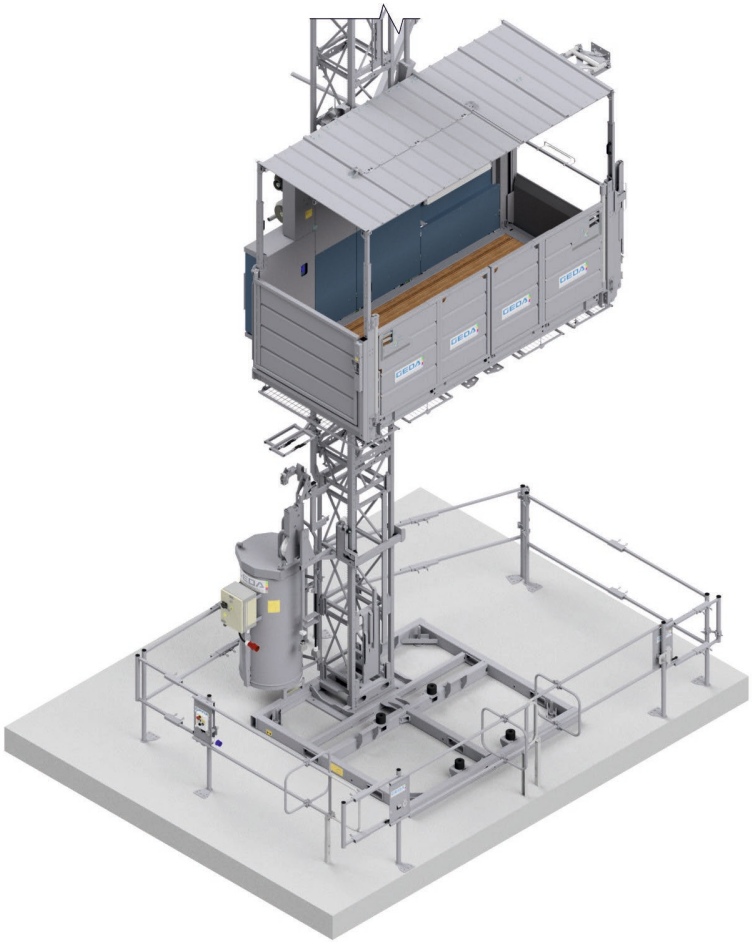


*Fig. 9: 1.10 m base enclosure with barrier*

Height = 1.10 m
Distance to moving hoist parts = min. 0.5 m

**Opening**

➢ Raise the barrier.

**Closing**

➢ Lower the barrier until it rests on the enclosure post.

**The platform can be operated only when the barrier of the base enclosure is closed.**

**The barrier can optionally be installed to open to the left or to the right.**

**Assembly of the 1.10 m base enclosure with barrier is described in detail in a separate assembly manual.**

**⚠ WARNING**

**Risk of injury from impaired view**

➢ The operator always has to check whether the travel path to the ground station is clear!

#### 4.3.1.3 Sliding door for 2.00 m base enclosure (option)

As an alternative to the 1.10 m base enclosure with barrier, the 2.00 m base enclosure with sliding door can be installed.

The sliding door for the base enclosure is installed on the access side and it must be extended on-site, e.g. with a fence around the base unit.

**The sliding door for the base enclosure can only be opened when the platform is stationary at the ground station.**

*Fig. 10: Sliding door for ground base enclosure*

After this 2 m high base enclosure is installed, the platform can be moved directly to the ground station without a delay limit switch (at the lower safety area).

**The platform can be moved only with the sliding door closed.**

**The sliding door for the base enclosure can be optionally installed to open to the left or right.**

**Comprehensive assembly instructions are provided in the assembly manual for the sliding door (ML018).**

### Opening

➢ Press and hold the button (1/2) until the door is pushed out of the lock.


*Fig. 11: Unlocking the sliding door lock*

➢ Use the door handle (3) or safety bar (4) to push open the sliding door.

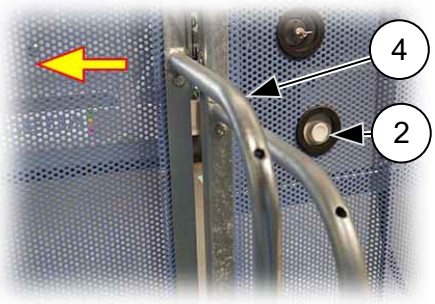



*Fig. 12: Opening the sliding door*

### Closing

➢ Use the door handle (3) or safety bar (4) to close the sliding door until the door engages in the door lock.

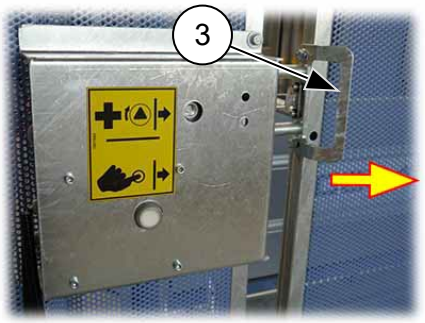



*Fig. 13: Closing the sliding door*

The loading ramp on the platform can only be opened when the sliding door is open.

*Fig. 14: Sliding door for base enclosure open*

**Operation with sliding door and high base enclosure**
**- DOWN travel without stopping at the lower safety area**
**- Control from the landing level to the ground station**

## Emergency release

### Door lock from outside

➢ Insert the triangular key (2) into the triangular door lock bolt (1) and turn clockwise until the sliding door can be opened.

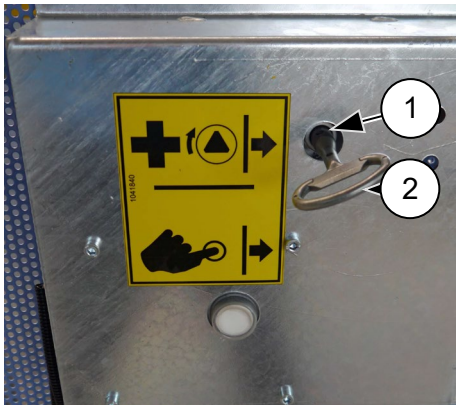



*Fig. 15: Emergency release for sliding door from outside*

**After emergency release, the triangular key (1) must be turned back anticlockwise!**

### Door lock from the inside

➢ In order to unlock the door lock, rotate the activating lever (3) in the opposite direction.

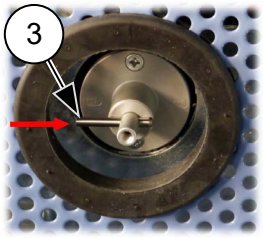



*Fig. 16: Door lock unlocked*

➢ After emergency release, the activating lever (3) must be reset!

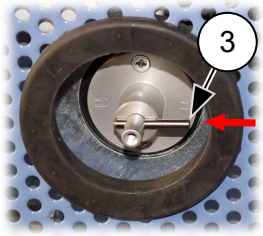



*Fig. 17: Door lock locked*

### 4.3.2 Platform access at the ground station

This access point to the platform can only be opened if the platform is stopped by the down limit switch at the ground station.

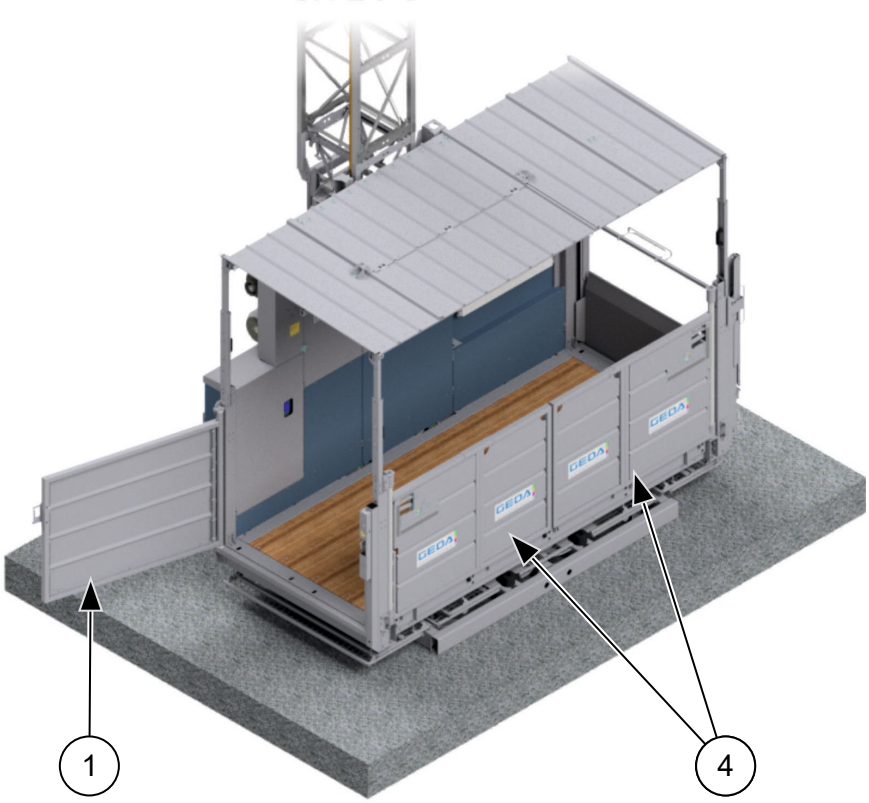



*Fig. 18: Platform access ground station*

1 Loading door

4 Loading folding doors

### 4.3.2.1 Loading door

#### Opening

- ➢ Push/pull the loading door (1) inwards with one hand.
- ➢ Lift/lower the interlock hook (2).
- ➢ Open the loading door (1).

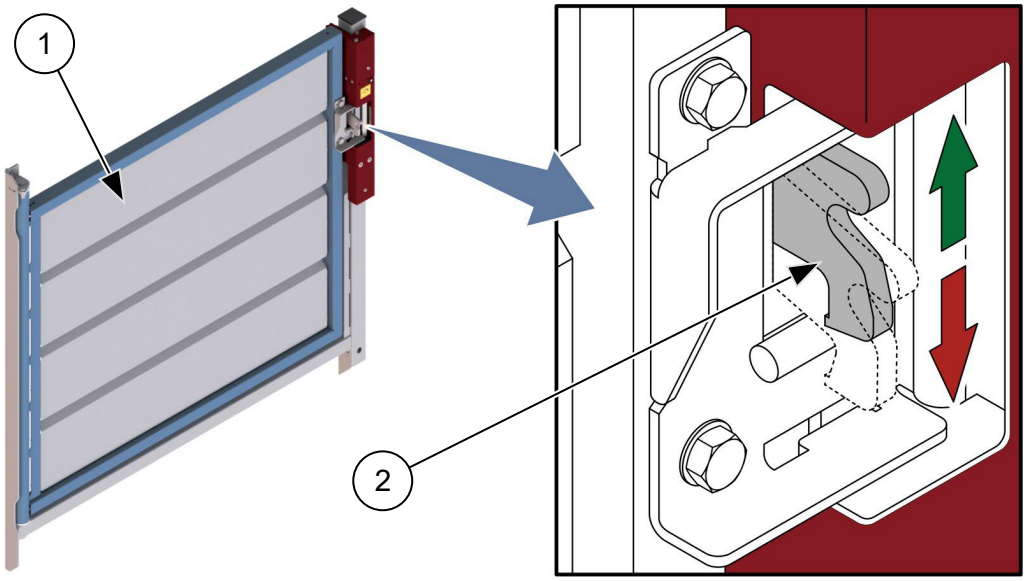



*Fig. 19: Loading door lock outside*

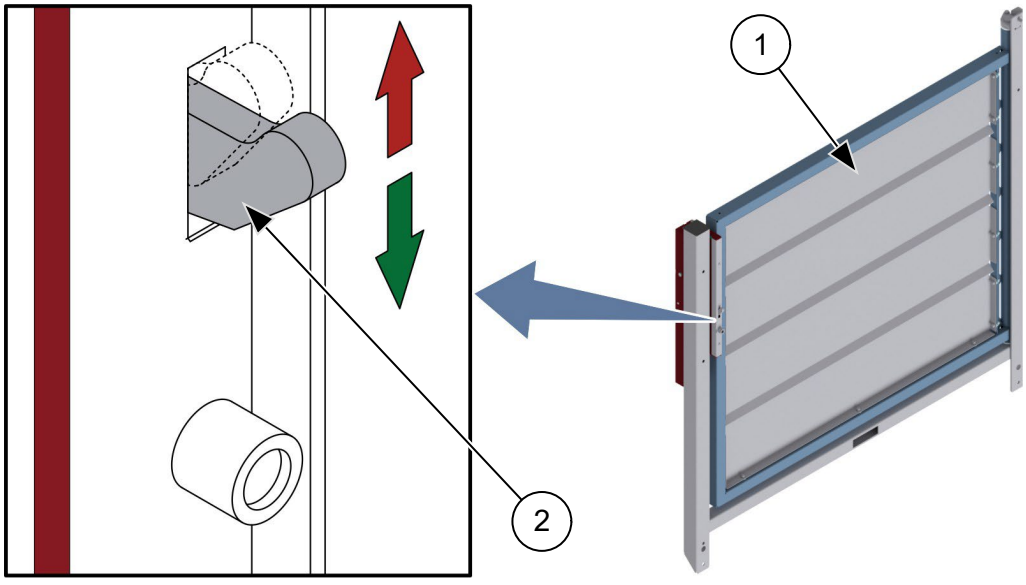



*Fig. 20: Loading door lock inside*

#### Closing

- ➢ Close the loading door (1) and push/pull inwards until the interlock hook (2) engages.

#### Emergency release

In the event of a power failure, the access to the platform can be manually unlocked at the ground station.

### Opening the door

- Insert the triangular wrench (3) into the lock and turn to the right.
- Lift/lower the interlock hook (2) and carefully open the loading door.
- Remove the triangular wrench (3).

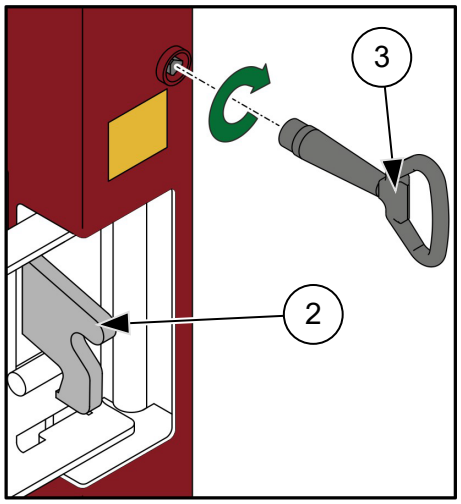



*Fig. 21: Loading door emergency release*

### 4.3.2.2 Loading folding door

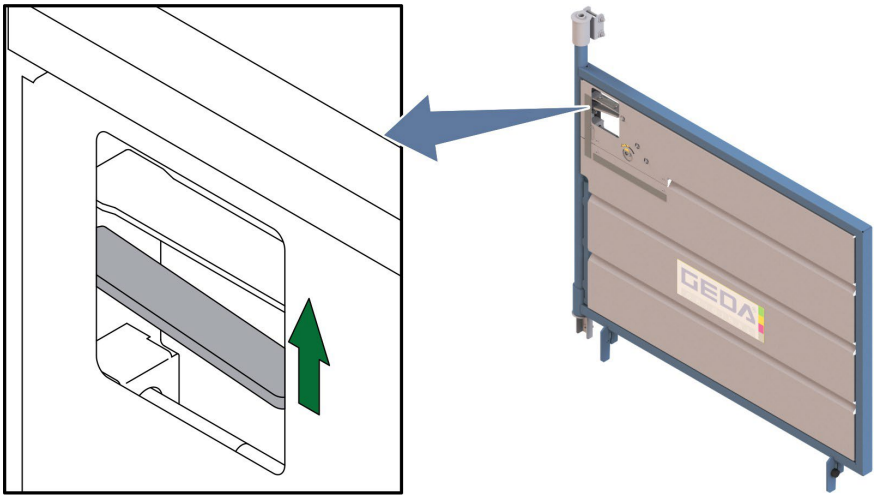


*Fig. 22: Opening/closing the loading folding door*

#### Opening

➢ Pull up the release lever (1) and open the door.

#### Closing

➢ Close the door and push downwards until the lock (2) engages.

#### Loading folding doors on the C-side

The C-side of the platform can be equipped with two loading folding doors.

**Opening and closing is possible separately for both double doors.**

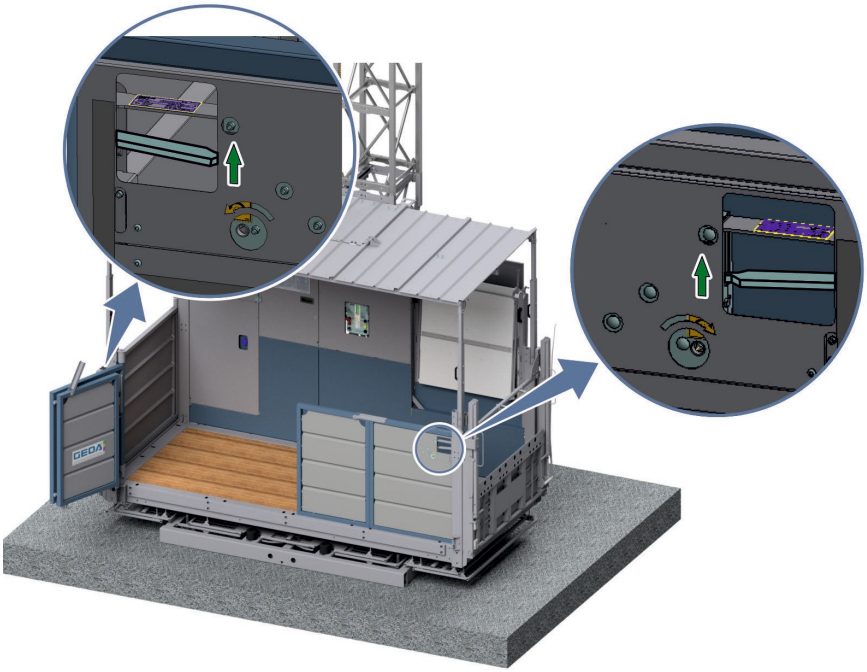


*Fig. 23: Loading folding doors on C-side*

### Emergency release

In the event of a power failure, the access to the platform can be manually unlocked at the ground station.

### Opening the ramp/door

- ➢ Insert the triangular key (3) into the lock.
- ➢ Turn the key and simultaneously press the door locking lever (1).
- ➢ Remove the key (3).

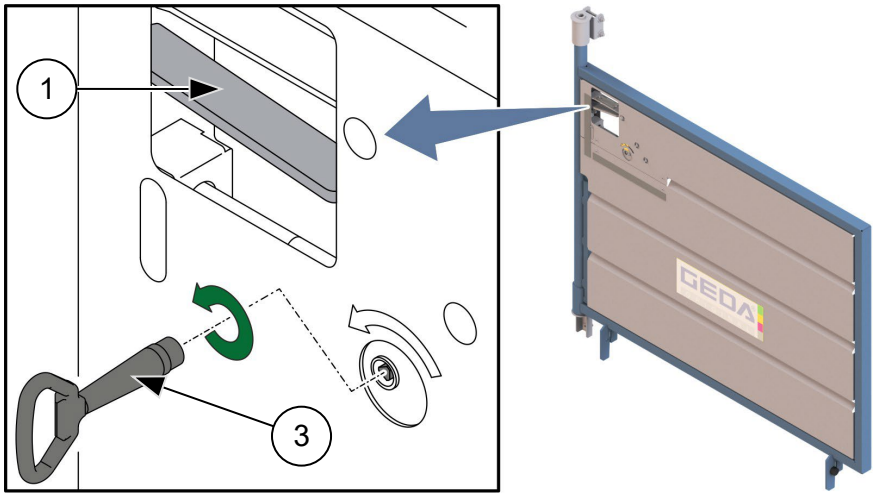



*Fig. 24: Emergency release ramp/loading outside*

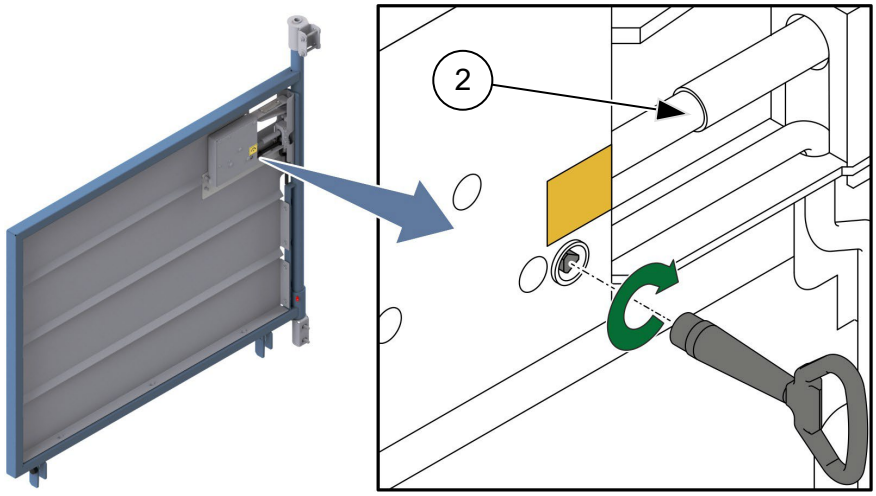



*Fig. 25: Emergency release ramp/loading inside*

2 Locking bolt

- ➢ Release and remove the triangular key.
  - ✓ The platform access can be opened.

### 4.3.3 Platform access landing level

Access to the landing level/scaffolding is secured with a barrier.
The loading ramp automatically folds down when the barrier is opened.

The open loading ramp unlocks the landing level safety gate.


*Fig. 26: Platform access landing level*

### 4.3.3.1 Barrier with mechanical lock

The barrier must only be opened when the platform is located at the landing level in front of a landing level safety gate.

**Two separate actions are required for opening the barrier.**

#### Opening

- ➢ Press the bar of the barrier interlock (2) towards the handle of the barrier (3).
- ➢ Swivel up the barrier (1).

The loading ramp opens.

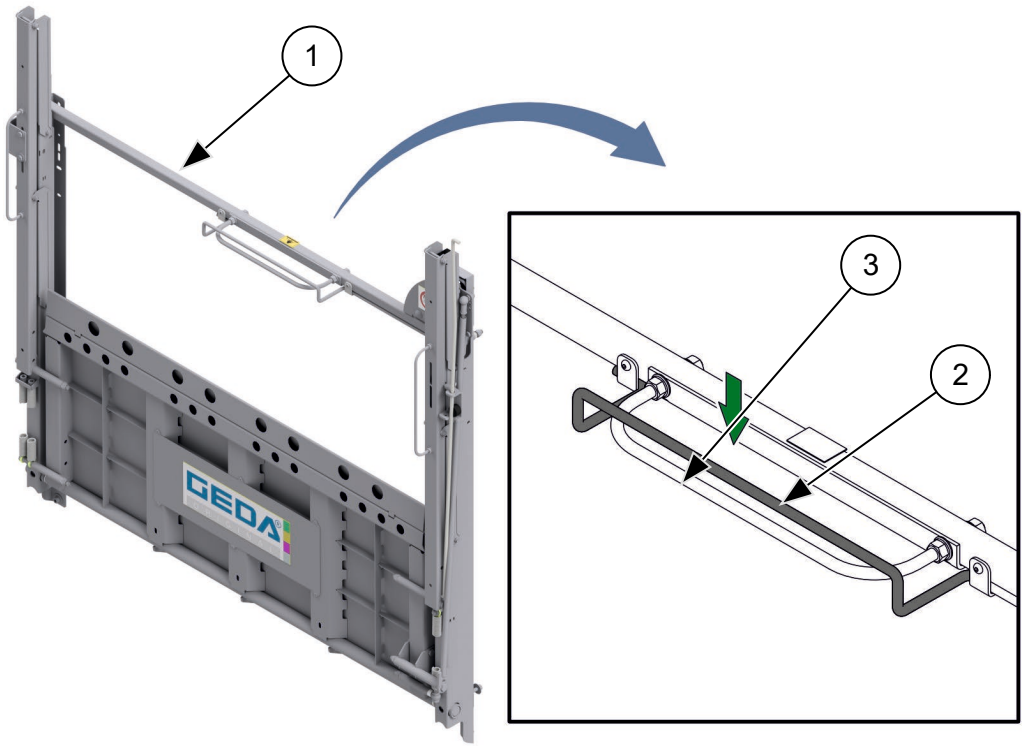



*Fig. 27: Opening barrier with mechanical lock*

#### Closing

- ➢ Lower the barrier (1) until it engages in the lock.

The loading ramp closes automatically.

### 4.3.3.2 Barrier with electromagnetic lock

Option as replacement for the barrier with mechanical lock.

The barrier is always locked and is automatically unlocked at the landing level (from the landing level stop bar). The barrier with loading ramp can only be opened at the landing level in front of a landing level safety gate.

#### Opening

➢ Raise the barrier (1).

The loading ramp opens automatically and unlocks the landing level safety gate.

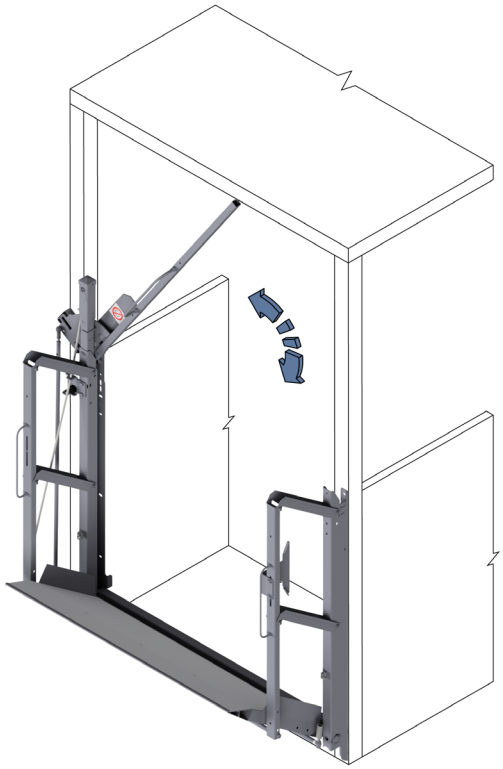


*Fig. 28: Opening/closing the barrier with electromechanical lock*

#### Closing

➢ Carefully lower the barrier (1) until it engages in the lock.

The loading ramp closes automatically.

**The barrier must be open by approx. 45° in order for the control to switch to external control.**

#### Emergency release

➢ Insert the triangular wrench (2) into the lock.
➢ Turn the key clockwise while lifting the barrier.
➢ Release and remove the key.
➢ Open the platform access.

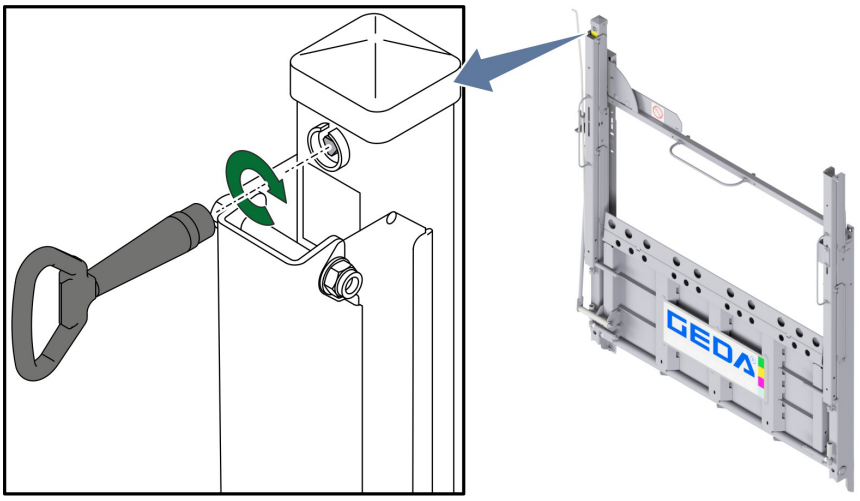


*Fig. 29: Emergency release of the barrier with electromechanical lock outside*

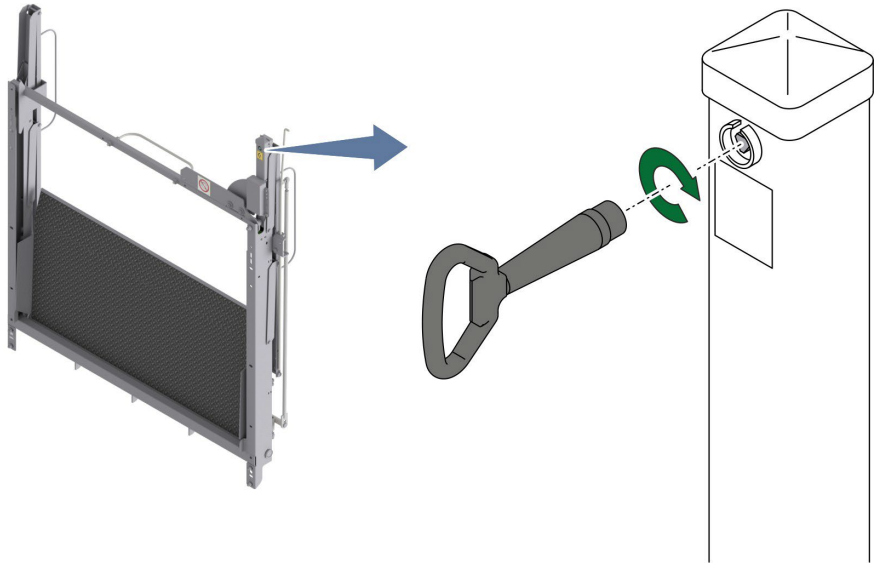


*Fig. 30: Emergency release of the barrier with electromechanical lock inside*

### 4.3.4 Securing loading and unloading points

To prevent persons from falling, fall protection must be installed at **all** loading and unloading points where there is a risk of falling from a height of more than 2 m.

Landing level safety gates protect people from falling at the stop position when the platform is not at the stop position.

Landing level safety gates must ensure safe transfer from the platform to the building.

**Safe working**

**Open landing level safety gate**

Falling from a landing level

➢ On transport platforms in accordance with EN 16719, the sliding doors of the landing level safety gates must be fully covered!

**Assembly is described in the respective Assembly Manual for the landing level safety gate.**

#### 4.3.4.1 "Standard/Standard Basic" landing level safety gate

**These landing level safety gates can only be opened once the loading ramp has been completely opened.**


*Fig. 31: Standard landing level safety gate no. 01217/01268*

**The “Standard Basic” landing level safety gate is delivered without railing tubes.**

### “Standard" landing level safety gate closed (tarpaulin)

(Option as per EN 16719)

The retrofit kit article no. 1130276 can be used to retrofit the “Standard” landing level safety gate with a tarpaulin.

**These landing level safety gates can only be opened once the loading ramp has been completely opened.**

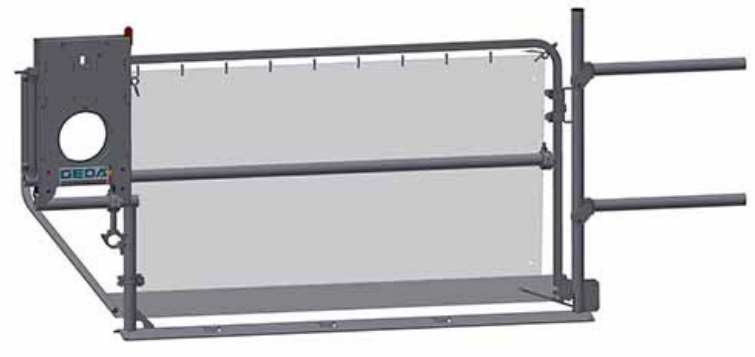


*Fig. 32: “Standard" landing level safety gate closed (tarpaulin)*

### “Standard" landing level safety gate closed (filler plate)

(Option as per EN 16719)

**These landing level safety gates can only be opened once the loading ramp has been completely opened.**

*Fig. 33: “Standard" landing level safety gate closed (filler plate)*

### Opening

➢ Press the lever (1A) in the direction of the arrow and push open the sliding door (1).

### Closing

➢ Close the sliding door (1) until the lever (1A) engages downwards.

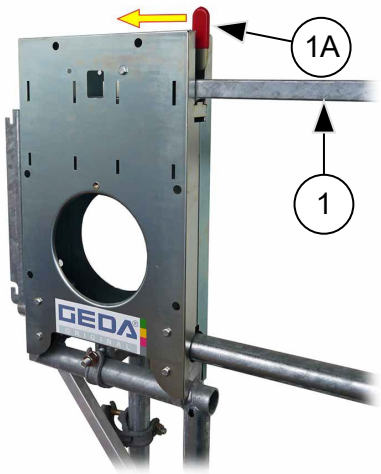



*Fig. 34: Opening/closing the “Standard” landing level safety gate*

### 4.3.4.2 "Comfort" landing level safety gate

**It is only possible to open this landing level safety gate when the unfolded unloading ramp is in contact with the sill of the landing level safety gate.**

*Fig. 35: "Comfort" landing level safety gate no. 01212*

**"Comfort" landing level safety gate closed (tarpaulin)**

(Option as per EN 16719)

The retrofit kit article no. 1130296 can be used to retrofit the "Comfort" landing level safety gate with a tarpaulin.

*Fig. 36: "Comfort" landing level safety gate closed (tarpaulin)*

**“Comfort” landing level safety gate closed (filler plate)**
(Option as per EN 16719)

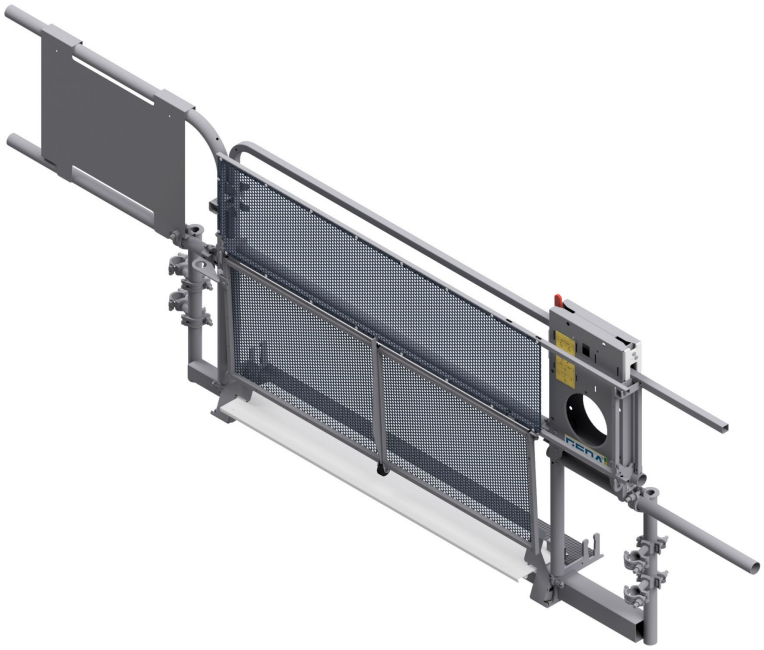


*Fig. 37: “Comfort” landing level safety gate closed (filler plate)*

### Opening

➢ Press the lever (2A) in the direction of the arrow and push open the sliding door (2).

### Closing

➢ Close the sliding door (2) until the lever (2A) engages downwards.

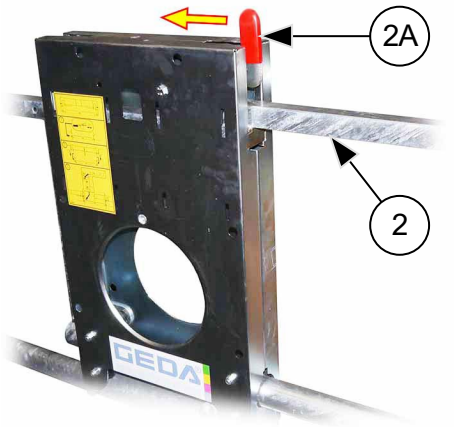



*Fig. 38: Opening/closing the “Comfort” landing level safety gate*

### 4.3.4.3 “Premium” landing level safety gate

**It is only possible to open this landing level safety gate when the unfolded unloading ramp is in contact with the sill of the landing level safety gate.**

Landing level safety gate in accordance with EN 16719

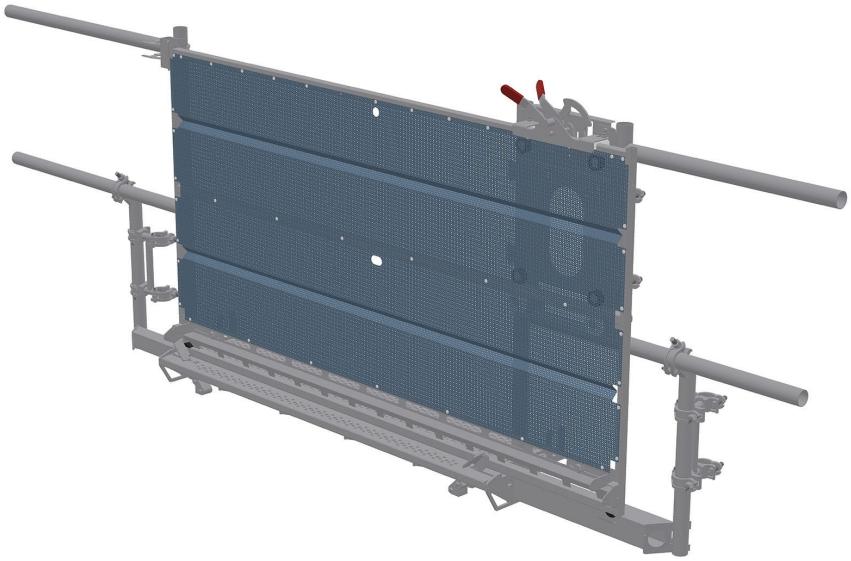


*Fig. 39: “Premium” landing level safety gate no. 68040*

#### Opening

➢ Press the lever (5I) in the direction of the arrow and push open the sliding door (5).

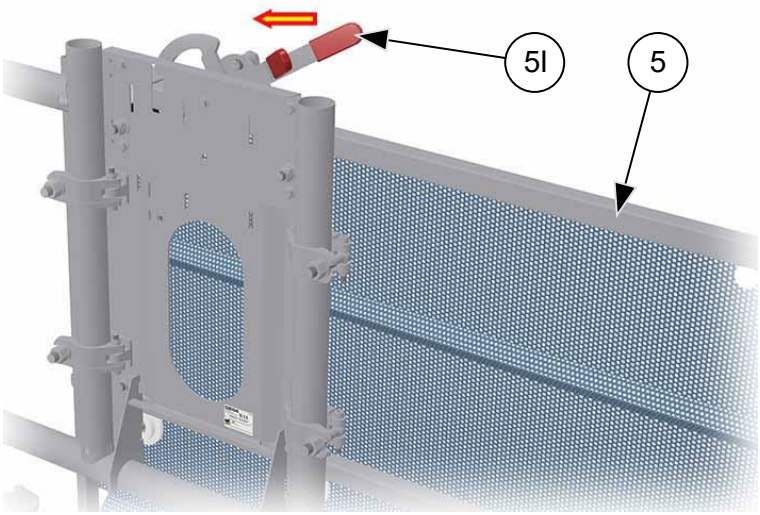



*Fig. 40: Opening/closing the landing level safety gate*

#### Closing

➢ Close the sliding door (5) until the lever (5I) engages downwards.

### 4.3.5 Functional description of the machine control

The **"transport platform"** operating mode (platform control) has to be activated.

The platform operator has to activate the platform control at the key switch on the platform control each time after entering the platform.

The **"Construction hoist"** operating mode (external control) is automatically activated.

When leaving the platform, the "Construction hoist" (external control) operating mode is activated automatically.

Depending on the version of the control, the operational readiness and the operating mode are indicated by a control light above the platform control or on the touch display

On the 2500 Z/ZP, the "construction hoist" mode (external control) is activated automatically in addition each time the platform is exited. Each time after the platform is exited, the platform control must be reactivated. The activated operating mode is displayed accordingly on the platform control.

- The machine is fitted with an overload detection device. If the load capacity is exceeded, this switches off travel movement in both directions and the red control light on the platform control illuminates.
  - In the version with HMI display, the status is shown on the touch display instead of the control light.
- The lifting speed of the platform is approx. 12 m/min from the platform control or max. 40 m/min. from the external controls.
- The lower safety area is specially secured.
  - The lifting speed of the platform is only approx. 12 m/min.
  - **DOWN** travel is only possible using dead man's control.
  - When the platform is descending, it stops at the lower safety area and, before starting in this area (in UP direction only if the send-and-call function is possible and activated), a warning signal is emitted for approx. 3 seconds.
- The platform openings (barrier, door/ramp, assembly guard, assembly plank) are electrically monitored and interrupt the safety circuit when opened so that the platform immediately stops or does not move off.
  - The access at the ground station can only be opened when the platform is actually at the ground station.
- The downward travel path of the platform is limited by a **DOWN** limit switch and the upward travel path is limited by an **UP** limit switch. If one of these limit switches is overrun due to a fault, the **EMERGENCY LIMIT** switch interrupts the **EMERGENCY STOP** safety circuit.

Further travel from the landing level limit switch is not possible in either direction.

- Installation of the construction hoist includes safety devices for the loading and unloading points (refer to the assembly manual).

**Use as a material hoist**

➢ Remove the key switch for the platform control.

- Operation is carried out using the ground control (manual control) outside the hazard area, or from the electric modules of the landing level safety gates.

Operation in the lower safety area.

- Downward travel can only be initiated from the ground control.
- Upward travel can be initiated from the ground control and, with the “send-and-call function” activated, from the electric modules at the landing levels.

In this area, the button must be pressed for a minimum of 3 seconds and, during this time, a warning signal is emitted. As soon as the platform starts to move, the **UP** button can be released.

**This Send-and-call function can be switched off! Refer to national regulations.**

**Use as a transport platform**

**For operation as a transport platform used to transport passengers as per EN 16719, the following has to be installed:**

- a roof
- a platform access on the building with a barrier, which is
  - secured with a mechanical lock and which can be operated with two separate actions
  - secured with an electromagnetic lock
- an underrun protection and barrier **or**
- a base enclosure

The platform is intended for temporary use on constructions sites for transporting persons and materials. It may only be used by trained personnel (platform operator) who receive the key to activate the platform control.

➢ To activate the platform control, insert the key into the key switch (5) and briefly switch/turn.

✓ The activated operating mode is displayed accordingly on the platform control.

- The maximum number of persons on the platform is limited to 7 (incl. platform operator).
- Operation is only possible from the platform control in dead man's control. Other control locations are therefore disabled.
  - When descending, the platform stops at the lower safety area. After the platform operator has made sure that the travel path downwards is clear, they again press and hold the **DOWN** button, then a signal is emitted. After approx. 3 seconds, the platform moves and stops at the **DOWN** limit switch.
- It is possible to stop at any position (e.g. to carry out work from the platform or to unload bulky components over the enclosure).

## 4.3.6 Send-and-call function

### Upward travel in the lower safety area

The send-and-call function can be used from the ground station to automatically move the platform "UP" from all control positions.

A key switch (15) is installed in the ground station switch box.

(Service key for authorised persons)

The send-and-call function can be activated at this key switch .

- ➢ Insert the service key into the key switch (15).
- ➢ Turn the key to the "H" position.
  - ✓ The send-and-call function is activated.


*Fig. 41: Send-and-call function activated*

**In the lower safety area, from all control positions, the move command button (3 or 4) has to be pressed for approx. 3 s until the platform moves. During this time, a warning signal is emitted.**

### Deactivating the send-and-call function

**This Send-and-call function can be switched off! Refer to national regulations.**

A key switch (15) is installed in the ground station switch box. (Service key for authorised persons)
The send-and-call function can be deactivated at this key switch.

- ➢ Turn the key to the "0" position.
  - ✓ The send-and-call function is deactivated.

The key can be removed in this position!

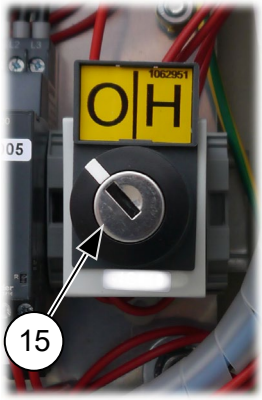



*Fig. 42: Send-and-call function deactivated*

**⚠ WARNING**

**Risk of injury**
For operation **without the base enclosure**, the send-and-call function has to be deactivated.

**Without the send-and-call function, the platform can only be moved with the "UP" (3) or "DOWN" (4) buttons outside of the safety area using the electric modules!**

## 4.3.7 Stop at landing level control [G-SNL]

### 4.3.7.1 Use as a construction hoist (external control)

[Ground control and electric modules at the landing levels]

**The loading door/ramp, barrier with unloading ramp and assembly plank must be closed and engaged. The assembly guard must be properly attached at the top.**

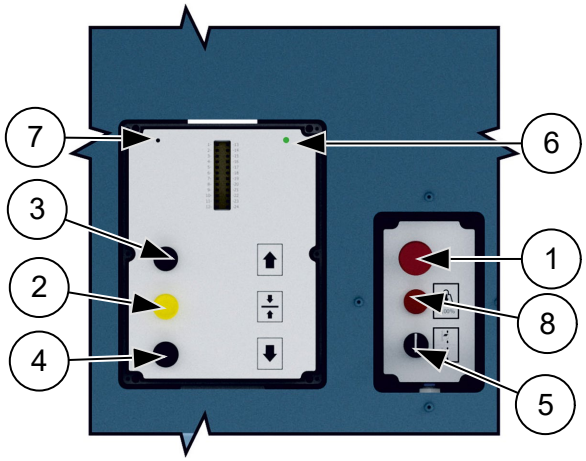



*Fig. 43: Actuating the external control*

1 **EMERGENCY STOP** button
2 **LANDING STOP** button
3 **UP** button
4 **DOWN** button
5 Key switch **operating mode**
6 LED display for "Construction hoist" operating mode is activated.
7 LED display for "Transport platform" operating mode is activated.
8 Overload control light

➢ The key switch (5) is not actuated.
→ “Construction hoist" mode is automatically activated.
✓ The LED display (6) of the selected operating mode lights up.

**In this position, the key can be removed.**
**The ground control and the electric modules for the landing level safety gates are active.**
**Transporting of persons is prohibited with external control!**

The machine can be used as a material hoist.

## Ground controls

The platform can be summoned to the ground station from higher stop positions or moved up to a landing level using the ground control.

### Manual control

1 **EMERGENCY stop** button
2 **STOP AT LANDING LEVEL** button
3 **UP** button
4 **DOWN** button

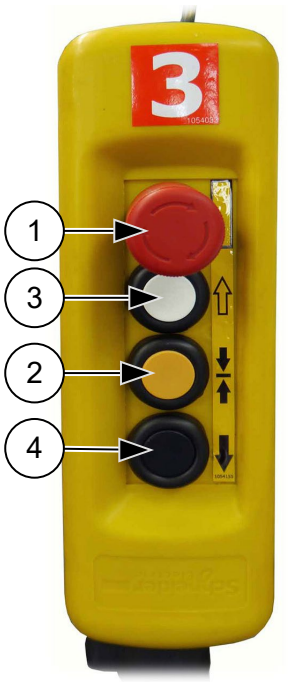



*Fig. 44: Ground control/manual control*

### Ground control for base enclosure

1 **EMERGENCY STOP** button
2 **STOP AT LANDING LEVEL** button
3 **UP** button
4 **DOWN** button

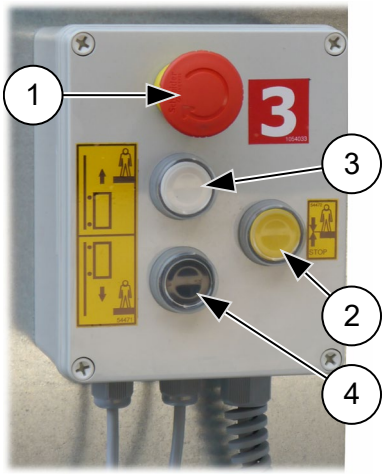



*Fig. 45: Ground control for enclosure*

### Travelling UP

➢ Press the UP button (3) for approx. 3 s and then release.
✓ The platform automatically moves to the top landing level and stops there.

**Outside the lower safety area or when the send-and-call function is deactivated, the waiting time of 3 seconds does not apply.**

### Stop at landing level

➢ Briefly press the button (2).
✓ The platform stops at the next landing level.

**A LANDING LEVEL limit switch bar appropriate to the landing level safety gate has to be installed (refer to the Assembly Manual).**

### Travelling DOWN

➢ Press and release the DOWN button (4).

✓ The platform travels downwards and stops before the lower safety area.

**⚠ WARNING**

**Risk of injury from platform moving downwards**

➢ Ensure that the downward travel path is clear.

➢ Only then can downward travel be continued.

➢ Press and hold the **DOWN** button (4) again.

The system issues an alarm signal and after approx. 3 s the platform starts moving and stops at the **DOWN** limit switch.

### Stop at landing level

➢ Briefly press the button (2).

✓ The platform stops at the next landing level.

### 4.3.7.2 Operation as transport platform (platform control)

The transport platform can only be operated from the platform in dead man's control. The platform only operates while the operating button is pressed.

**The platform control may only be used with adequate brightness levels (at least 50 lx)!**

The platform may only be accessed and exited at stop positions above 2 m at the installed landing level safety gates.

The ramp, barrier with unloading ramp and assembly plank must be closed and engaged. The assembly guard must be properly attached at the top.

**May only be operated by instructed personnel (platform operator).**

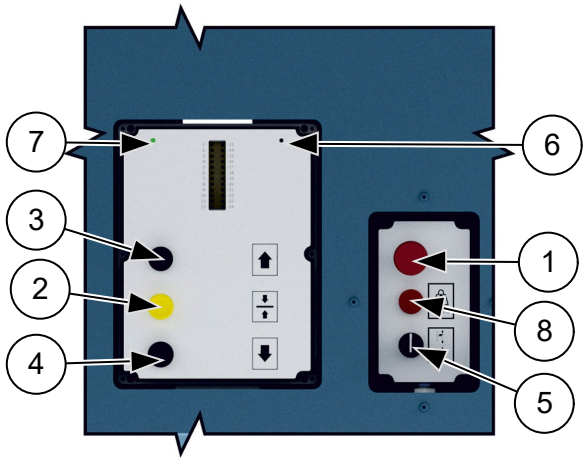



*Fig. 46: Activating the platform control*

1 **EMERGENCY STOP** button
2 **LANDING STOP** button
3 **UP** button
4 **DOWN** button
5 Key switch **operating mode**
6 LED display for "Construction hoist" operating mode is activated.
7 LED display for "Transport platform" operating mode is activated.
8 Overload control light

➢ Put key into the key switch (5) and turn it briefly to the right.
→ "Transport platform" mode is activated.
✓ The LED display (7) of the selected operating mode lights up.

**Only the platform control is activated.**

With the platform control activated, the machine has to be used as a transport platform.

**To be able to travel in the lower safety area, the move command button must be pressed and held down.**

**The platform control has to be activated after each time when entering the platform!**

### Travelling UP

➢ Press and hold the **UP** button (3).

✓ The platform only moves while the **UP** button (3) is pressed.

### Stop UP travel

➢ Release the **UP** button (3).

✓ The platform reaches the UP END stop rail and automatically stops (the UP limit switch switches off).

### Stop at landing level

If the platform is to be exited at a transfer point (landing level equipment) for loading and unloading, the platform must be stopped so that it is level with the landing-level safety door.

**A LANDING LEVEL limit switch bar appropriate to the landing level safety gate has to be installed (refer to the Assembly Manual).**

➢ Before the landing level safety gate is reached, briefly press the **STOP AT LANDING LEVEL** button (2).

✓ The platform stops at the next landing level.

### Travelling DOWN

➢ Press and hold the **DOWN** button (4).

✓ The platform only moves while the DOWN button (4) is pressed.

### Stop DOWN travel

➢ Release the **DOWN** button (4).

✓ The platform descends and stops automatically above the lower safety area.

**⚠ WARNING**

**Risk of injury from platform moving downwards**

➢ Ensure that the downward travel path is clear.

➢ Only then can downward travel be continued.

➢ Press and hold the **DOWN** button (4) again.

✓ The system issues an alarm signal and after about 3 s the platform will start moving and stop at the DOWN limit switch.

**When leaving the platform, activation of the platform control is switched off automatically!**

**Stop at landing level**

**A stop at landing level is also possible during DOWNWARD travel.**

## 4.3.8 Landing pre-selection control [G-SAC]

### 4.3.8.1 Use as a construction hoist (external control)

[Ground control and electric modules at the landing levels]

**The loading door/ramp, barrier with unloading ramp and assembly plank must be closed and engaged. The assembly guard must be properly attached at the top.**

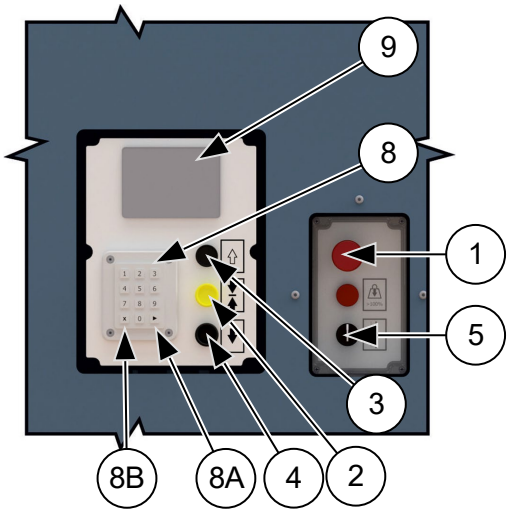



*Fig. 47: Activating the platform/external control*

1 **EMERGENCY STOP** button
2 **LANDING STOP** button
3 **UP** button
4 **DOWN** button
5 Key switch **operating mode**
8 **Keypad** (for input of the landing levels)
8A **START** button
8B **STOP** button
9 HMI touch display

➢ The key switch (5) is not actuated.
→ “Construction hoist" mode is automatically activated.
✓ Ready for operation is shown on the HMI touch display (9). The start screen is shown on the touch display.

**In this position, the key can be removed.**
**The ground control and the electric modules for the landing level safety gates are active.**
**Transporting of persons is prohibited with external control!**

The machine can be used as a material hoist.

The landing pre-selection is implemented on the platform control.

The platform's UP/DOWN control system is implemented on the ground control and the electric modules at the landing levels.

**Landing pre-selection**

The landing level can be directly pre-selected on the keypad.

A maximum 50 landing levels can be accessed. Only one landing level can be entered at a time in the destination memory.

The landing level display indicates the current landing.

**Upward travel to a landing level**

- Enter the desired landing level on the keypad (8).
  → The selected landing level is shown in the display (9).

For example:

1 → Landing level 1

5 → Landing level 5

10 → Landing level 10

- Press the **Start** button (8A) to confirm entry.
  → The display (9) shows the respective position and direction of travel.

**Downward travel to a landing level**

- Enter the desired landing level on the keypad (8).
  → The selected landing level is shown in the display (9).

For example:

10 → Landing level 10

5 → Landing level 5

1 → Landing level 1

- Press the **Start** button (8A) to confirm entry.
  → The display (9) shows the respective position and direction of travel.
- Press and hold the **DOWN** button (4).
  ✓ The platform only moves while the DOWN button (4) is pressed.
- Exit the platform and close the platform access from the outside.
- Close the barrier of the base enclosure or the landing level safety gate.

## Manual control

1 **EMERGENCY stop** button
2 **STOP AT LANDING LEVEL** button
3 **UP** button
4 **DOWN** button

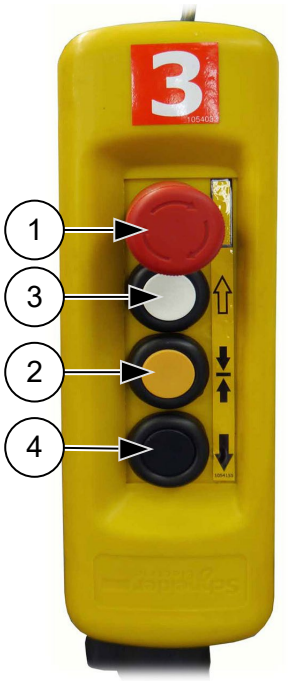



*Fig. 48: Ground control/manual control*

## Ground control for base enclosure

1 **EMERGENCY STOP** button
2 **STOP AT LANDING LEVEL** button
3 **UP** button
4 **DOWN** button

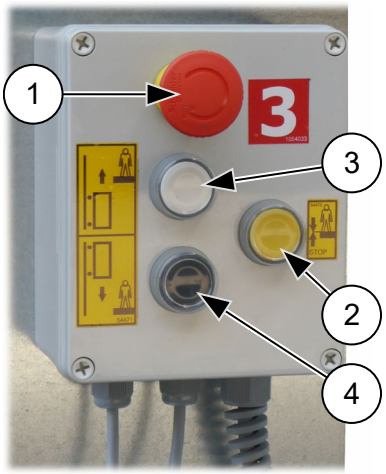



*Fig. 49: Ground control for enclosure*

### Travelling UP

➢ Press the UP button (3) for approx. 3 s and then release.
✓ The platform automatically moves to the selected landing level and stops there.

**Outside the lower safety area or when the send-and-call function is deactivated, the waiting time of 3 seconds does not apply.**

**A LANDING LEVEL limit switch bar appropriate to the landing level safety gate has to be installed (refer to the Assembly Manual).**

### Travelling DOWN

➢ Press and release the DOWN button (4).
✓ The platform travels downwards and stops at the selected landing level or before the lower safety area.

| ⚠ WARNING | |
|---|---|
|  | **Risk of injury from platform moving downwards**<br>➢ Ensure that the downward travel path is clear.<br>➢ Only then can downward travel be continued. |

➢ Press and hold the **DOWN** button (4) again.

The system issues an alarm signal and after approx. 3 s the platform starts moving and stops at the **DOWN** limit switch.

### 4.3.8.2 Operation as transport platform (platform control)

The transport platform can only be operated from the platform in dead man's control. The platform only operates while the operating button is pressed.

**The platform control may only be used with adequate brightness levels (at least 50 lx)!**

The platform may only be accessed and exited at stop positions above 2 m at the installed landing level safety gates.

The ramp, barrier with unloading ramp and assembly plank must be closed and engaged. The assembly guard must be properly attached at the top.

**May only be operated by instructed personnel (platform operator).**

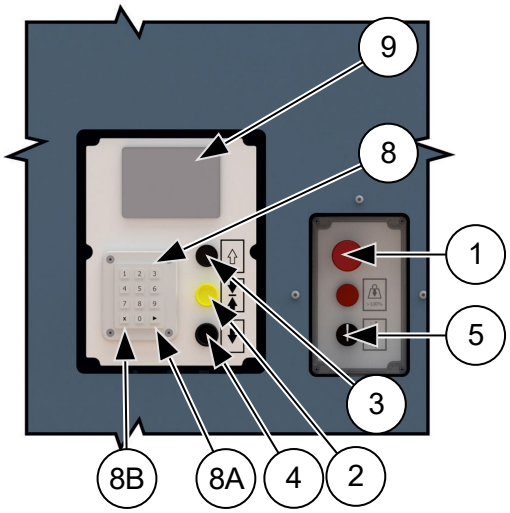



*Fig. 50: Activating the platform/external control*

1 **EMERGENCY STOP** button
2 **LANDING STOP** button
3 **UP** button
4 **DOWN** button
5 Key switch **operating mode**
8 **Keypad** (for input of the landing levels)
8A **START** button
8B **STOP** button
9 HMI touch display

➢ Put key into the key switch (5) and turn it briefly to the right.
→ "Transport platform" mode is activated.
✓ Ready for operation is shown on the HMI touch display (9). The start screen is shown on the touch display.

**Only the platform control is activated.**

With the platform control activated, the machine has to be used as a transport platform.

**In the lower safety area, the move command button (3/4) must be pressed for approx. 3 s until the platform moves. During this time, a warning signal is emitted.**

**The platform control has to be activated after each STOP AT LANDING LEVEL and each time when entering the platform!**

### Travelling UP

➢ Press and hold the **UP** button (3).
  ✓ The platform only moves while the **UP** button (3) is pressed.

### Stop UP travel

➢ Release the **UP** button (3).
  ✓ The platform reaches the UP END stop rail and automatically stops (the UP limit switch switches off).

### Travelling DOWN

➢ Press and hold the **DOWN** button (4).
  ✓ The platform only moves while the DOWN button (4) is pressed.

### Stop DOWN travel

➢ Release the **DOWN** button (4).
  ✓ The platform descends and stops automatically above the lower safety area.

**⚠ WARNING**

**Risk of injury from platform moving downwards**

➢ Ensure that the downward travel path is clear.
➢ Only then can downward travel be continued.

➢ Press and hold the **DOWN** button (4) again.
  ✓ The system issues an alarm signal and after about 3 s the platform will start moving and stop at the DOWN limit switch.

**When leaving the platform, activation of the platform control is switched off automatically!**

→ Since the destination is not known, the symbol “Stop at next landing level” is displayed.

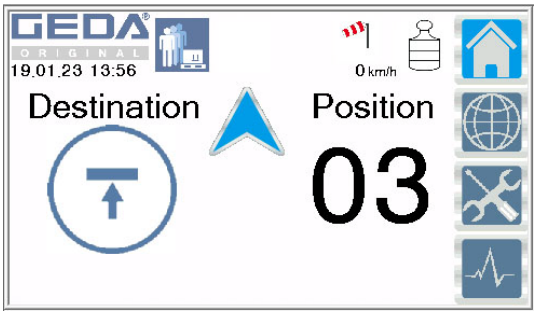



*Fig. 51: Display without landing level destination*

**If a landing level is stopped at, this is shown as the destination landing level on the display.**

### Landing pre-selection

The landing level can be directly pre-selected on the keypad.

A maximum 50 landing levels can be accessed. Only one landing level can be entered at a time in the destination memory.

The landing level display indicates the current landing.

### Upward travel to a landing level

➢ Enter the desired landing level on the keypad (8).

→ The selected landing level is shown in the display (9).

For example:

1 → Landing level 1

5 → Landing level 5

10 → Landing level 10

➢ Press the **Start** button (8A) to confirm entry.

→ The display (9) shows the respective position and direction of travel.

➢ Press and hold the **UP** button (3).

✓ The platform only moves as long as the **UP** button (3) is pressed and stops automatically at the preselected landing level.

**Downward travel to a landing level**

- Enter the desired landing level on the keypad (8).
  → The selected landing level is shown in the display (9).

For example:
10 → Landing level 10
5 → Landing level 5
1 → Landing level 1

- Press the **Start** button (8A) to confirm entry.
  → The display (9) shows the respective position and direction of travel.
- Press and hold the **DOWN** button (4).
  ✓ The platform only moves while the DOWN button (4) is pressed.

## 4.3.9 Landing level modules

The landing level module must be installed on the landing level safety gates if local regulations specify electrical monitoring of the landing level equipment or control from an upper stop position is required.

**Control from the stop position is only possible in "Construction hoist" operating mode and only above the lower safety area.**

### 4.3.9.1 Landing level module with stop

The **UP** or **DOWN** direction can be selected from the electric modules.The exact stop at the next landing level is activated by pressing the **LANDING LEVEL** button.

3 **UP** button
(move to the top landing level)

4 **DOWN** button
(move down to the ground station)

5 **STOP AT LANDING LEVEL** button
(car stops at the next landing level)

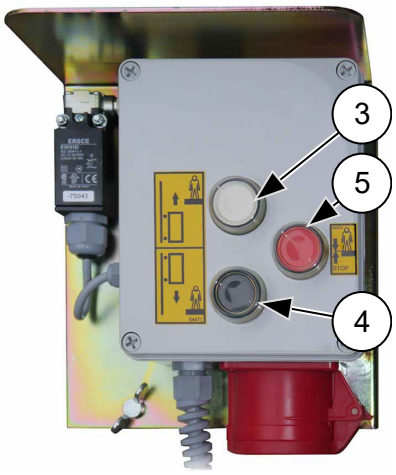



*Fig. 52: Landing level module for stop at landing level*

**Ascending**

➢ Press and release the **DOWN** button (3).
  ✓ The car moves directly to the top landing level and stops there.

**Descending**

➢ Press and release the **DOWN** button (4).
  ✓ The car moves from any landing level down to the ground station.

**Stop at landing level**

➢ Briefly press the **STOP AT LANDING LEVEL** button (5).
  ✓ The car stops at the next landing level in the direction of travel.

### 4.3.9.2 Landing level module with call control

The car can be requested [called] from the landing level modules. The car stops at the landing level from which the car was called.

**Calling the car**

➢ Briefly press the **CALL** button (13) briefly.

→ The button lights up to confirm the input until the car has arrived at the stop position.

✓ As soon as it is ready, the car moves to the requested landing level.


*Fig. 53: Landing level module for call control*

**Call** button flashes **blue** – call control not active.
(e.g. car is near to the load limit or wind too strong)

**Call** button flashes **red** – malfunction (call control)

**Programming the electric module for this landing level call control is described in a separate assembly manual.**

## 4.3.10 Controls for special operation

**These controls must be kept locked by the operating company!**

The drop test control and assembly control are plugged into the connector [mast side] on the platform control switch box.

➢ Disconnect the dummy plug (7) and connect the appropriate control.

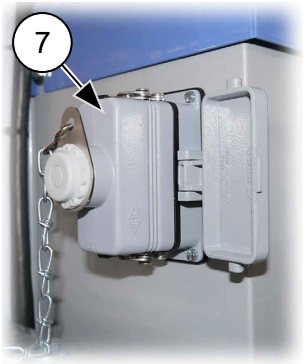



*Fig. 54: Plugging in the control for special operation*

### 4.3.10.1 Operation for assembly

The assembly control is used for assembly of the hoist.

1 **EMERGENCY stop** button

3 **UP** button

4 **DOWN** button

5 **RELEASE** button
(Press and hold before the move command until ascent or descent are complete.)

6 **SPEED** selector switch
(normal/slow)

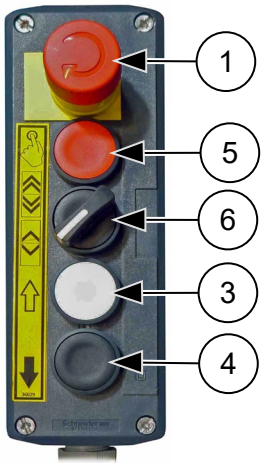



*Fig. 55: Assembly control*

**Operation of the assembly control is described in the Assembly Manual.**

### 4.3.10.2 Drop test control

The drop test control is used for checking the safety gear by means of a drop test.

**The drop test control may only be operated by a technically competent person!**

1 **EMERGENCY stop** button
2 **BRAKE RELEASE** buttons
3 **UP** button
4 **DOWN** button

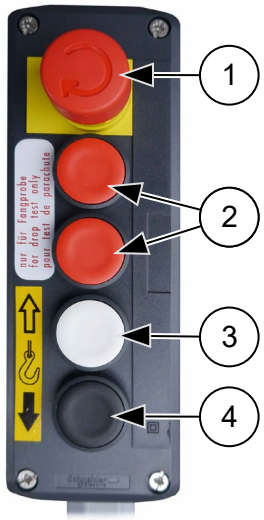



*Fig. 56: Drop test control*

**Operation of the drop test control is described in the Maintenance Manual.**

### 4.3.11 Emergency shutdown

In situations that present a risk to operating personnel or the machine, the machine can be shut down by pressing an EMERGENCY STOP button.

An EMERGENCY STOP button is located at each control point.

*Fig. 57: EMERGENCY STOP button*

**EMERGENCY STOP slam buttons are equipped with a latching mechanism and remain active until they are manually unlocked again (turn red button to the right and pull it out).**

**A stop button is located on the electric modules for the landing level safety gates and can be used to stop travel from each landing level. This stop button does not engage which means that further travel is immediately possible after the stop command.**

## 4.4 Interrupting work – end of work

**Switch off and secure the machine when interrupting work and at the end of work.**

- ➢ Move the platform downwards until it stops at the DOWN limit switch.

**If there is a risk of frost, move the platform up a little so that the DOWN limit switch is clear.**

- ➢ Unload the platform.
- ➢ Remove the key from the key switch on the platform control.
- ➢ Turn off the main switch (position "0" [OFF]) and secure with a padlock.
- ➢ Disconnect the mains plug.


*Fig. 58: Main switch secured*

## 4.5 Equipment

### 4.5.1 Roof

**⚠ DANGER**

**Risk to life from falling parts**

➢ For transporting passengers, a roof has to be installed as per EN 16719.

**Function:**

To protect people against falling parts.
To protect against direct sunlight/rain and snow.

The height of this roof can be adjusted from 2.10 m (transportable position) to 2.60 m.

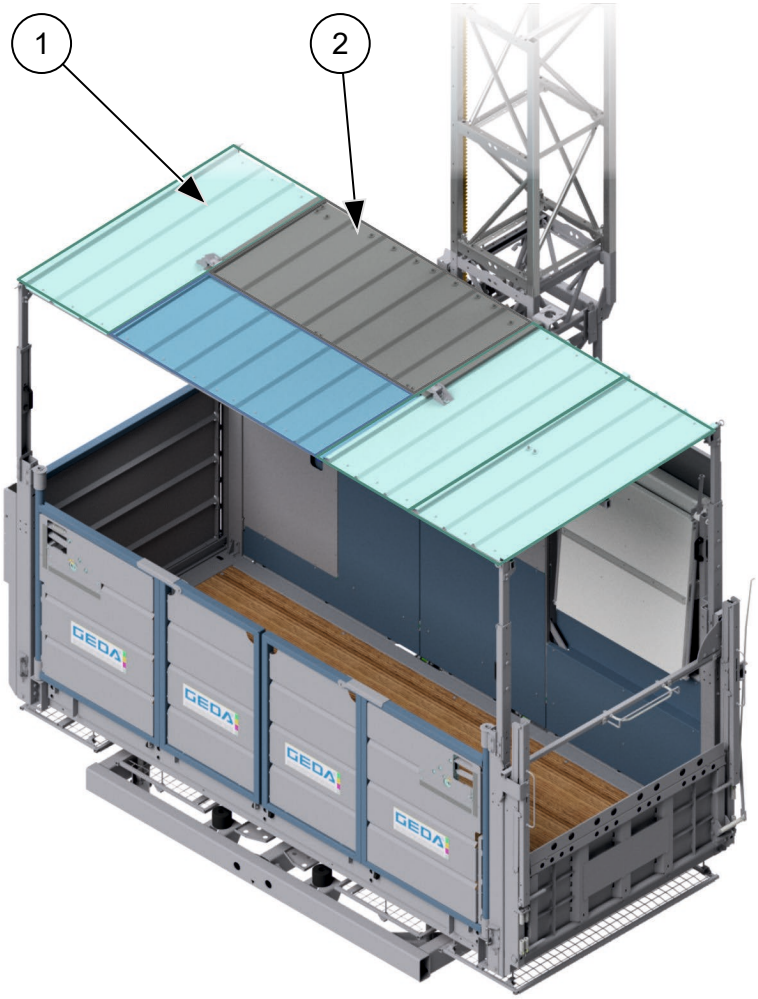



*Fig. 59: Roof with assembly opening*

1 Roof

2 Assembly opening

### 4.5.2 Underrun protection

**For platforms with underrun protection, a barrier is sufficient for securing the ground station!**

**Function:**

Protects the transport platform against damage from hitting obstacles.

**⚠ WARNING**

**Risk of injury from platform moving downwards**

- Never remain inside the cordoned-off area during operation.
- Turn off the main switch and secure it from being switched on whilst working inside the cordoned-off area.

Protects persons who are underneath the platform without permission. They could be crushed by the platform during downward travel.

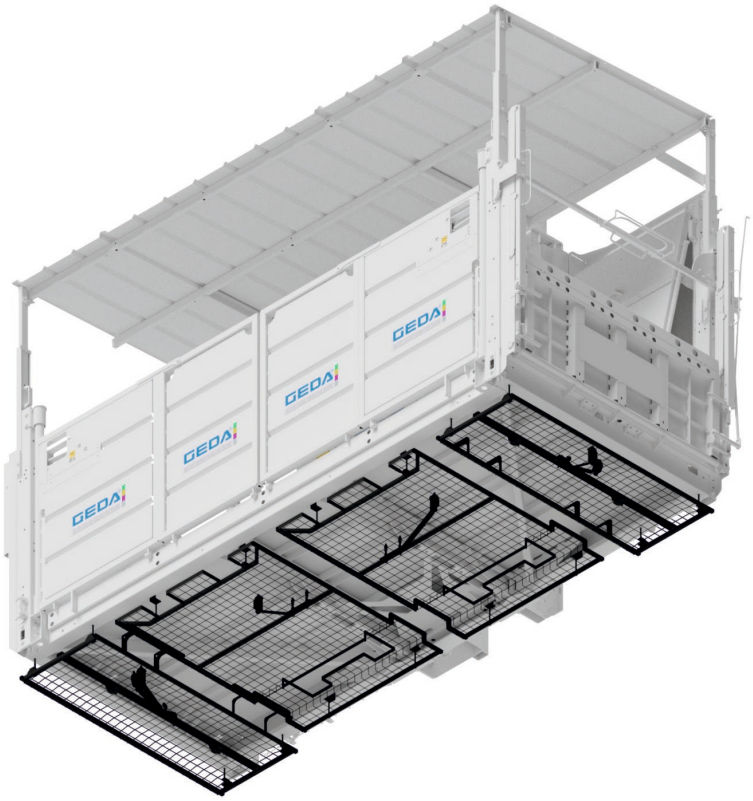



*Fig. 60: Underrun protection*

**When the underrun protection is raised, control is interrupted by a limit switch. This only allows upward travel.**

Remove the obstacle from the travel path. Only this allows travel again.

### 4.5.3 Assembly plank

**The assembly plank may only be used during assembly and for maintenance.**

The assembly plank (1) is a folding platform which helps with anchoring the mast sections exclusively from the platform (can also be used in front of a façade, without frontal scaffolding).

1 Assembly plank

2 Additional assembly platform

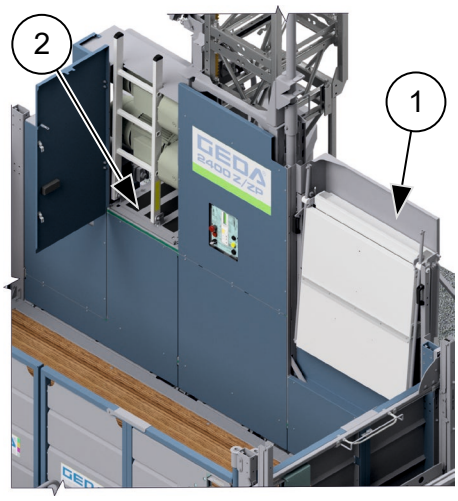



*Fig. 61: Assembly plank*

#### Additional assembly platform

**The additional assembly platform may only be used during assembly or for maintenance.**

An additional assembly platform (2) with a fold-out ladder is mounted on the other side of the mast so that the connecting bolts and mast brackets there are also easy to reach.


*Fig. 62: Additional assembly platform*

### 4.5.4 Document and tool box

**The document and tool box contains:**

- 1 x triangular key for **EMERGENCY** release of the door lock and the barrier with electromagnetic interlock.

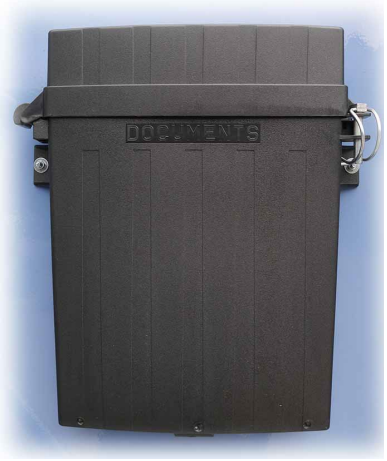



*Fig. 63: Document box*

**The documents and tool box should contain:**

- Operating Manual and Maintenance Manual for the machine
- Spare parts lists
- Circuit diagrams
- Operating instructions of the operating company
- Rescue plan of the operating company

### 4.5.5 Operating hours counter

An operating hours counter (1) is installed in the platform switch box to record the operating hours (motor operating time).

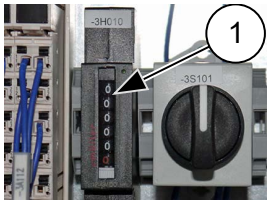



*Fig. 64: Operating hours counter*

**The switch box must be opened to read the counter.**

## 4.6 Accessories

### 4.6.1 Central spindle (option)

The **central spindle** is used for alignment of the mast and transfer of the forces [bearing pressure] from the machine into the subsurface.

➢ Install **central spindle** (1) in the foot section support (2) below the mast.

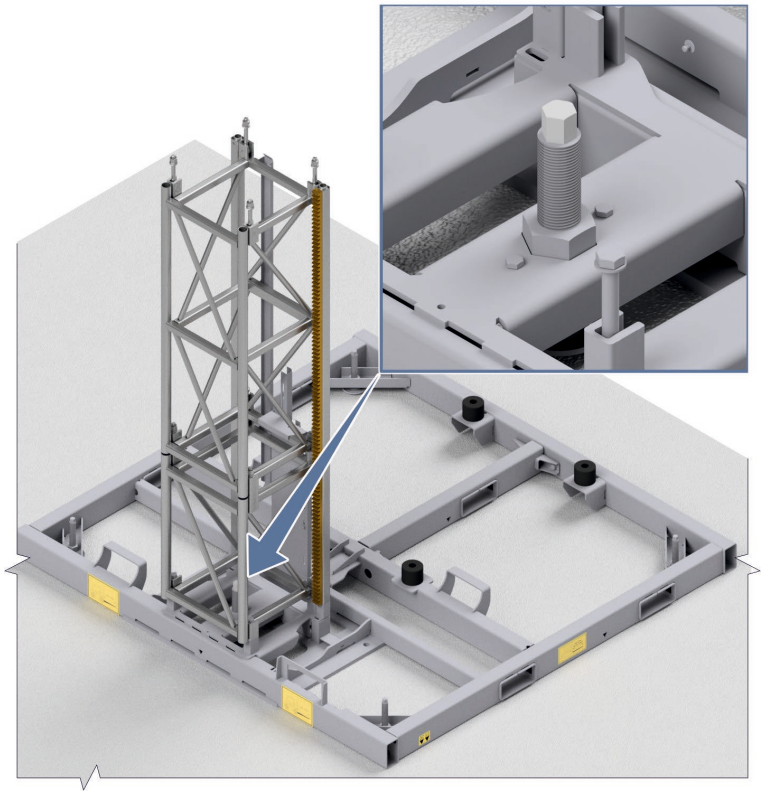


*Fig. 65: Install central spindle*

### 4.6.2 Cold package

The 2500 Z/ZP can be used down to a temperature of -20 °C. In countries where work is also carried out at lower temperatures, installation of a cold package is recommended.

A thermostat in the switch box of the platform switches off upward travel at temperatures below -20 °C.

*Fig. 66: Cold package*

### 4.6.3 Wind sensor (option)

The wind sensor measures the wind speed while the hoist is in operation.

For hoists with touch display, **CODE 33** will be shown at a wind speed of 65 km/h or higher.

For machines with a diagnostic system, LED 19 lights up.

Operation of the hoist remains unrestricted.

The image is an example

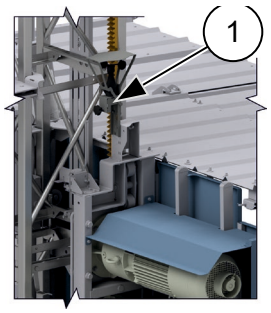



*Fig. 67: Wind sensor*

#### Automatic descent (option)

If the max. permissible wind speed of 72 km/h is exceeded, the hoist automatically moves to the ground station.

**The car executes the actual command. It then automatically returns down to the ground station.**

**CODE 33** is shown on the touch display for the car control.

### 4.6.4 Assembly crane

When assembling the mast, the assembly crane (1) can be used to lift the mast sections onto the already mounted mast.

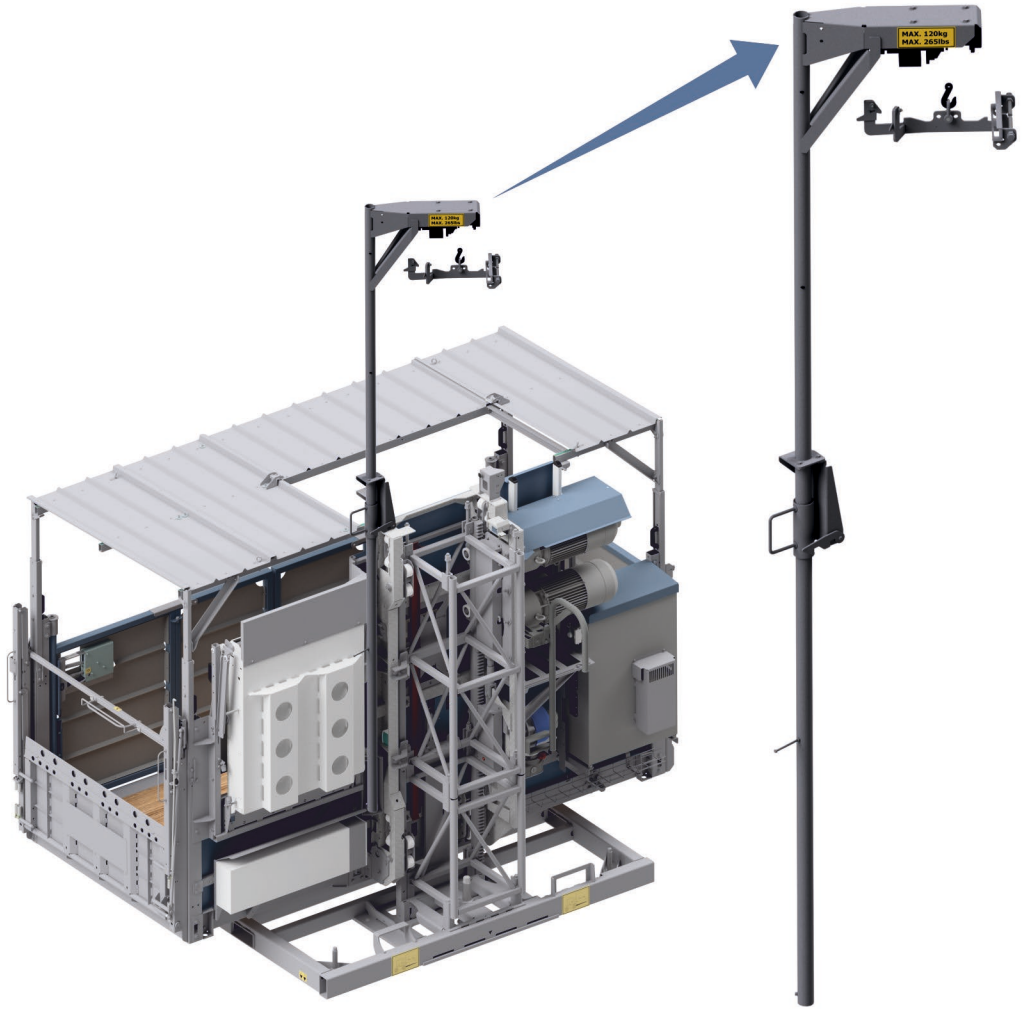



*Fig. 68: Assembly crane*

# 5 Malfunctions – diagnosis – repair

**⚠ WARNING**

**Risk of injury from incorrect troubleshooting and fault elimination**

- Troubleshooting and the fault elimination may only be carried out by persons specially trained and authorized for this purpose.
- Before troubleshooting, lower the platform and unload it if possible!
- Immediately discontinue operation if faults occur that endanger operational safety!

**⚠ DANGER**

**Electric shock from live parts**

- Before working on the electrical system, switch off and lock the main switch. For safety reasons, disconnect the mains plug.

## 5.1 Diagnostic system

### 5.1.1 Diagnostics with LED display

The diagnostic system allows quick and easy identification of the switching status of the limit switches and EMERGENCY STOP buttons.

After input of the move command, only the top left LED must light up.

If this is not the case, the corresponding function or corresponding limit switch must be checked.

**Switching states**

LED top left = **ON** by default

Remaining LEDs = **OFF** by default

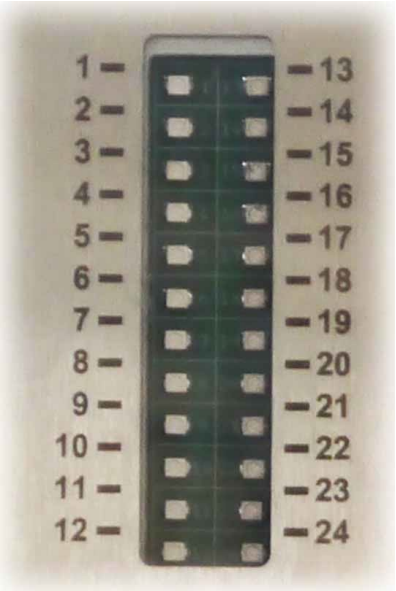



*Fig. 69: Diagnostics with LED display module*

| LED no. | Meaning of the LED |
|---|---|
| 1 | Lights up when machine is ready for operation<br>Flashes when a machine lock is active |
| 2 | Lights up when the **EMERGENCY STOP** button of the platform control is activated. |
| 3 | Lights up in the event of phase failure or if the phase sequence is incorrect |
| 4 | Lights up when a safety stop button is actuated. |
| 5 | Lights up when the limit switch for the safety gear is activated.<br>Flashes when the limit switch for the safety gear is actuated. An upwards clearance run is required. |
| 6 | Lights up when the limit switch for the cable trolley is actuated. |
| 7 | Lights up when the limit switch of the underrun protection is actuated. |
| 8 | Lights up when the limit switch for the assembly plank is actuated. |
| 9 | Lights up when the limit switch for the assembly guard is activated. |
| 10 | Illuminates when excessive tension is applied to the trailing cable holder. (Cable protection) |
| 11 | Lights up when the proximity switch at the end of the mast is actuated. |
| 12 | Lights up when the emergency stop line is interrupted at the ground station or the landing levels. |
| 13 | Lights up when the limit switch for the mast monitoring (drop-down flap) is actuated. |
| 14 | Lights up if there is a fault on the drive, brake, braking resistor or frequency converter. |
| 15 | Lights up when the brake fuse has tripped. |
| 16 | Lights up when the platform/hoist entrances are open (not locked). |
| 17 | Lights up when the platform/hoist exits are open (not locked). |
| 18 | Lights up when no dummy plug or assembly/drop test control is plugged in. |
| 19 | Lights up if the permissible wind speed is exceeded during operation. The wind sensor was triggered.<br>Flashes if the wind speed is back within the operating range, but no move command has been issued. |
| 20 | Lights up when the permissible operating temperature is undershot. The temperature sensor in the cold package has been triggered. |
| 21 | Lights up when the **UP** limit switch is actuated.<br>Flashes of the landing level has not been reached correctly. |
| 22 | Lights up when the **DOWN** limit switch is actuated. |
| 23 | Lights up if the lubrication device is empty.<br>Flashes if the lubrication device is empty and only crawling speed is possible. |
| 24 | Overload detection device was triggered |

## 5.1.2 Diagnostics with CODE display

On the option with HMI display, **CODE** messages may be shown on the display for diagnostics purposes.

Code messages with a yellow background indicate service or maintenance information.

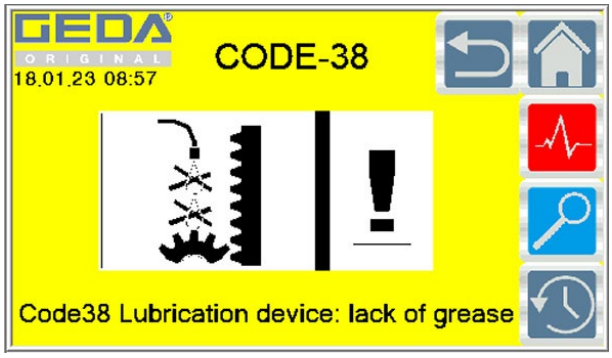



*Fig. 70: Touch display – warning*

Code messages with a red background indicate information about a malfunction.

**The machine/hoist is not ready for operation!**

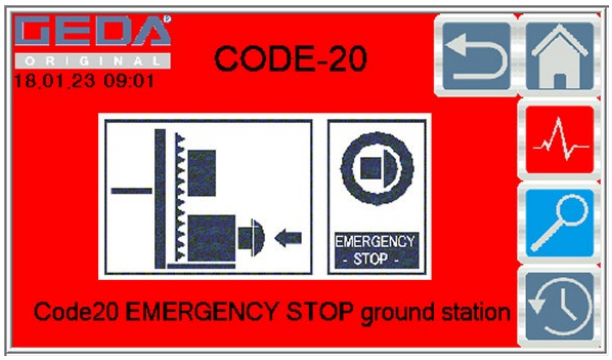



*Fig. 71: Touch display – malfunction*

**Only the possible status messages and CODE numbers which are relevant for your machine are displayed!**

**The operation and description of the touch display are described in a separate operating manual. This manual is part of the machine documentation.**

## 5.2 Fault table

The following table lists potential malfunctions and the appropriate remedial action.

| Malfunction | Cause | Remedial action |
|---|---|---|
| Green control light off | | |
| | Mains plug disconnected | Connect the mains plug |
| | Mains switch off | Switch on the main switch |
| | Lamp defective | Replace lamp |
| | Phase failure | Measure the phases |
| | Incorrect phase sequence | Correct the phase sequence on the phase sequence monitor |
| | Travelling cable unplugged | Plug in the trailing cable |
| | Fuses in the ground station switch box not OK | Check/correction |
| Green control light **lights up**, platform does not move | | |
| | **EMERGENCY STOP** button (at a control point) pressed | Unlock the**EMERGENCY STOP** button |
| | Loading door/ramp open | Close loading door/ramp |
| | Barrier with loading ramp open | Close barrier with loading ramp |
| | Assembly guard plate open | Attach assembly guard plate at the top |
| | Assembly plank (if fitted) open | Close the assembly plank and engage safety hook twice |
| | **EMERGENCY LIMIT** limit switch activated | Refer to platform moved too high/too low |
| | Base enclosure barrier / sliding door open (option) | Close the base enclosure barrier / sliding door |
| | Safety gear engaged | Release safety gear (refer to chapter 5.3.5 Safety gear has triggered, page 104) |
| | Key switch on the platform control switched to the incorrect operating mode | Activate control using key switch |
| Red control light lights up or pulsing signal tone sounds. | | |
| | Overload protection has triggered | Reduce the load |

| | | |
|---|---|---|
| Platform only moves upwards | | |
| | Is the **DOWN** limit switch functioning properly | Check/replace the **DOWN** limit switch |
| Platform only moves upwards | | |
| | Is the **UP** limit switch functioning properly | Check/replace the **UP** limit switch |
| | Clearance for the proximity switch for monitoring the gear rack is too large | Adjust the clearance to the gear rack (3 - 7 mm) |
| Platform moved too high (refer to chapter 5.3.2 Platform has travelled too high, page 101) | | |
| | **UP**-limit switch is defective | Check / replace**UP**-limit switch |
| | Fault in the electrical system | Check system |
| Platform moved too low (refer to chapter 5.3.3 Platform moved too low, page 102) | | |
| | **DOWN**-limit switch is defective | Check / replace**DOWN**-limit switch |
| | Fault in the electrical system | Check system |
| | Air gap for the brake is too large | Adjust the air gap |
| Motor does not attain full performance | | |
| | Voltage drop of more than 10% | Select a supply cable or extension cable with a greater cross section |
| The platform access door at the ground station does not open. | | |
| | The platform was been stopped by the DOWN limit switch | Move the platform to the DOWN limit switch |
| | Door lock defective | Door EMERGENCY release. Replace defective lock |
| | No voltage | Connect power supply |

## 5.3 Rectify fault

### 5.3.1 Motor is not delivering full power

- Voltage drop of more than 10 % of the rated voltage.
- Select cable with larger cross-section.
- The integrated thermal switches turn off the control current when overloaded. Work can continue after a certain cooling down period (possibly reduce load).

**⚠ CAUTION**

**Motor overload from overloading the machine**

The motor heats up and the motor/brake service life is reduced.

### 5.3.2 Platform has travelled too high

The platform travels too high, i.e. the EMERGENCY limit switch of the platform reaches the **UP-END** stop rail.

**Possible causes:**

- the **UP** limit switch is defective
- there is a malfunction in the electrical system

**Action:**

- Bleed the motor brake using the brake release lever (refer to chapter 5.4.2 Rescue action plan, page 108).

### 5.3.3 Platform moved too low

The platform moves too low, i.e. the **EMERGENCY** limit switch of the platform reaches the lower **EMERGENCY STOP** stop rail.

**Possible causes:**

- brake clearance is too large
- the **DOWN** limit switch is defective
- there is a malfunction in the electrical system
- the platform is overloaded
- the platform was lowered with the manual brake release

**Action:**

- The platform has to be moved back to the operating range of the mast (clearance run).

**⚠ CAUTION**

**Risk of injury from incorrect operation**

➢ Free movement using the drop test control may only be carried out by a competent person specifically appointed by the operating company who, due to their training, knowledge and practical experience, are able to evaluate the risks.

**Drop test control**

➢ Plug in the drop test control. (refer to chapter 4.3.10 Controls for special operation, page 85)

➢ From outside the platform, press the **UP** button (3).

✓ Now the platform moves out of the **END** position.

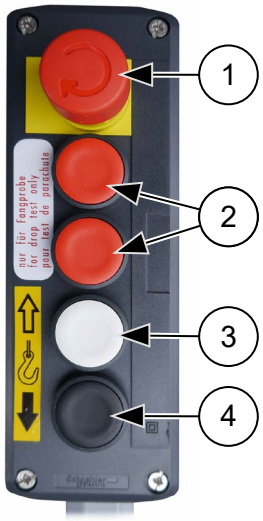



*Fig. 72: Drop test control*

**ATTENTION**

**Damage to the machine from incorrect operation**

➢ The **UP** button (3) must be pressed because this control bridges the **EMERGENCY** limit switch. If the **DOWN** button (4) or the **BRAKE RELEASE** buttons (2) are actuated inadvertently, the motor brake is released and the motor can drop hard onto the foot section.

➢ After the clearance run, disconnect the drop test control again and plug in the dummy plug.

**If this problem occurs repeatedly despite the platform not being overloaded, have the brake checked or adjusted by a qualified person.**

### 5.3.4 Overload detection device has triggered

The platform is equipped with an overload detection device which prevents the platform from being operated when it is overloaded.

If the platform is overloaded, the red control light on the platform lights up.

➢ Reduce the load weight on the platform until the red control light (8) goes out. - Only then is travel possible.


*Fig. 73: Overload indicator*

### 5.3.5 Safety gear has triggered

The platform is equipped with safety gear that slows down the platform if it travels too fast. Further travel is not possible once the safety gear has been triggered.

**⚠ WARNING**

**Risk of death from the safety gear being triggered**

- All persons must exit the platform.
- Determine why the safety gear has engaged, secure the platform and repair the damage before releasing the safety gear!
- The safety gear may only be released by a competent person who is specifically appointed by the operating company and who, due to their training, knowledge and practical experience, are able to evaluate the risks and assess the safe condition of the safety gear.

- Plug the drop test control into the connector on the mast side of the trolley switch box (refer to chapter 4.3.10 Controls for special operation, page 85).

- Press the UP button (3) outside the platform and move the platform up by approx. 20-30 cm.
- After neutral running of the drop test control, disconnect the drop test control and insert the dummy plug into the socket.

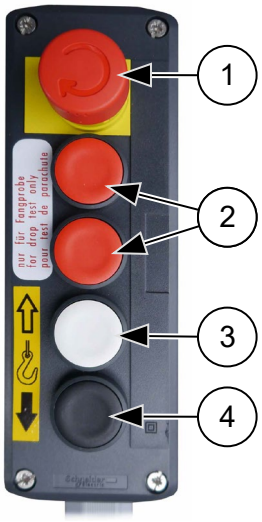



*Fig. 74: Drop test control*

- Release the 4 bolts (1B) on the protective cover.
- Remove protective cover (1).

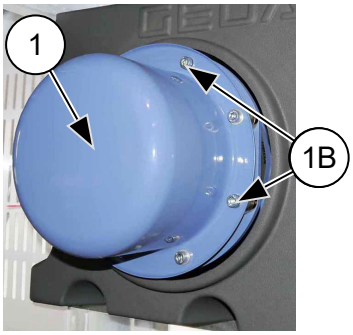



*Fig. 75: Remove protective cover*

After turning back the central bolt (4), the bracket (2) must be installed and, therefore, is connected by a rope (2B) to the safety gear so as not to lose it.

➢ Remove the bracket (2) (2A).

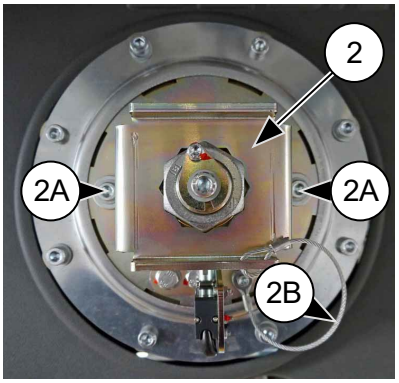



*Fig. 76: Remove bracket*

➢ Place the wrench (3) from the tool cabinet on the centre bolt (4).

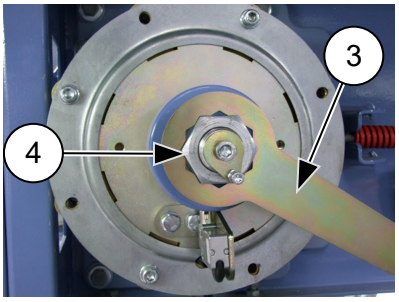
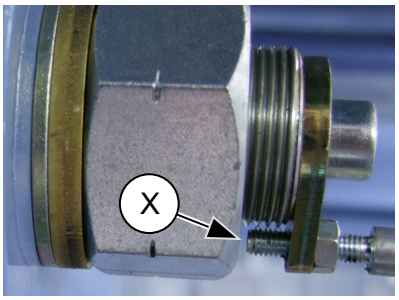



*Fig. 77: Turn back the spring assembly*

➢ When turning back the spring assembly do not damage the limit switch (6).




X Gap

*Fig. 78: Reset the safety gear (incorrect)*

➢ Turn the spring assembly back until it lies against the bolt of the pretensioner (5).

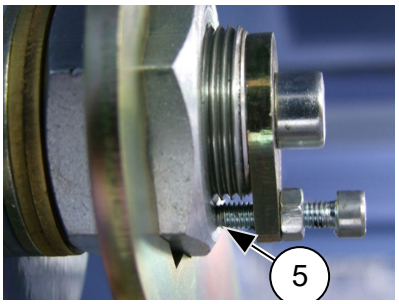



*Fig. 79: Reset the safety gear (correct)*

**Assembly is carried out in reverse sequence.**

➢ Make sure that the limit switch (6) is no longer actuated.

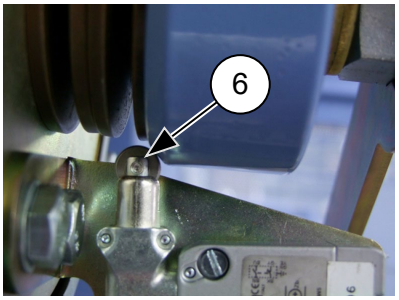



*Fig. 80: Check limit switch activated*

## 5.4 Retrieving the platform

Rescue may become necessary in the event that, e.g.

- there is no mains voltage.
- the electrical system malfunctions.
- the drive has failed.
- the safety gear has triggered.

**If the supervisor/platform operator does not feel confident or qualified to organise and carry out the rescue, notify the relevant authorities (rescue personnel).**

### 5.4.1 Basic conduct in the event of a rescue/malfunction

- Obtain an overview of the situation.
- Remain calm and do not act hastily.
- Be cautious and thorough when checking the situation!
  - Is anybody hurt?
- Keep unauthorised persons away.
- Contact any persons trapped in the car.
- Attempt to find the cause of the malfunction/defect on the system, e.g.
  - power failure
  - safety gear triggered
- If necessary, inform the trapped persons about the planned procedure.
- Notify your supervisor about the malfunction.
- Notify any rescue services.

**The sequence of measures can/must be amended by the attendant/rescue personnel depending on the specific situation.**

## 5.4.2 Rescue action plan

### 5.4.2.1 Checking the operating mode

Check whether the key switch on the platform control is switched to the correct operating mode.

If not, the operating mode (transport platform/construction hoist) must be activated and the corresponding control used to travel to the ground station.

### 5.4.2.2 Rescue in the event of a status display

Only on the option with HMI display on the platform control can status messages be shown on the display.

CODE messages indicate the status of the hoist system or switching states of the limit switches.

- Identify CODE message (see CODE table in this manual).
- If possible, clear the displayed CODE message/switching state.

### 5.4.2.3 Self-rescue using EMERGENCY lowering device

In an emergency, the next lower landing level can be reached by releasing the motor brakes. Persons trapped may be able to evacuate in this way.

**Moving the car downwards by releasing the motor brake is not possible if, e.g. the safety gear has been triggered (CODE 14).**

#### Executing an EMERGENCY descent

**ATTENTION**

**Descending too quickly will trigger the safety gear**

This disables the car which will then initially need to be raised.

➢ Only lower the car very slowly!

➢ Remove the brake release rod (2) from the mount.

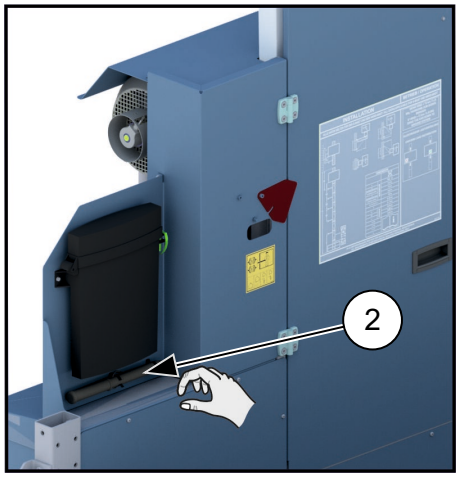



*Fig. 81: Brake release rod in mount*


*Fig. 82: Opening for brake release rod*

- ➢ Release the triangular bolt (3).
- ➢ Move the cover plate (4) aside and attach.

- ➢ Push the lever (2) through the opening on the side cover and guide to the brake release levers (1) of the motor brake.

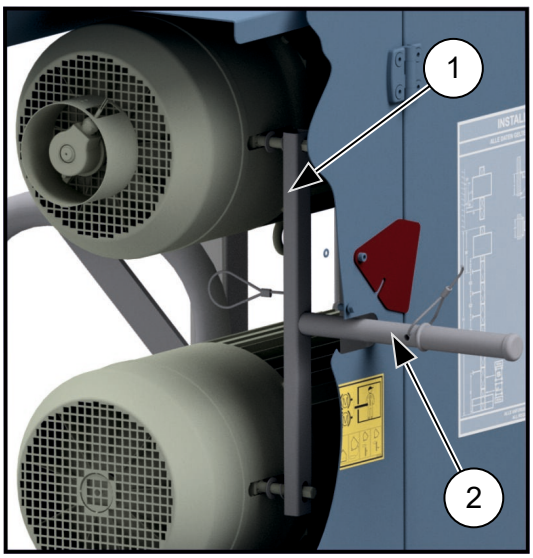



*Fig. 83: Attaching the brake release rod*

- ➢ Lightly press on the brake release lever (2) to release the motor brake.
  - ✓ The platform/car glides downwards.

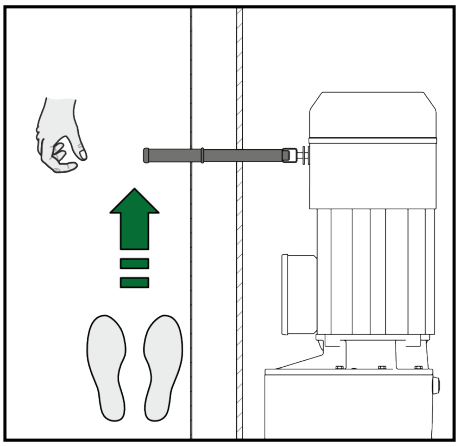


*Fig. 84: Releasing the motor brake*

**The label [Brake Indicator]on the brake release levers will be damaged during emergency release and has to be replaced after checking the motor brake!**

**⚠ CAUTION**

**The brake becomes very hot and loses braking power**

- ➢ Interrupt the lowering process for 2 min after every 1 - 2 m at the latest. The length of a mast section can be used for orientation.

- ➢ When at the next landing level, release the brake release lever.
- ➢ Stop so that the floor of the platform is slightly above the sill of the landing level safety gate.
- ➢ Exit the platform.

**It is not possible to lower the platform by releasing the motor brakes if e.g. the safety gear has been triggered.**

**⚠ WARNING**

**Risk of injury from defective safety gear**

- Now check to ensure that no parts of the drive system are broken, damaged or unserviceable. In this case, the safety gear must **not** be released.
- **The transport platform must be decommissioned!**

**After the emergency:**

After emergency lowering, the motor brake has to be checked (e.g. check brake path, see Maintenance Manual).

- Place the brake release lever (1) back in the bracket (2)
- Replace the damaged label (brake indicator) or place a new label over it.

### 5.4.2.4 Recovery in accordance with emergency plan

Evacuation is carried out in accordance with the emergency plan/operating company's rescue plan.

**A rescue plan must be prepared by the operating company and kept in a clearly visible place on the hoist!**

## 5.5 Repair

**ATTENTION**

**Maintenance work carried out by untrained personnel**

➢ Repair work may only be carried out by trained and competent persons because it requires special expert knowledge and skills. Neither is explained in this Operating Manual.

**When ordering spare parts, please provide the following:**

- Type
- Year of construction
- Serial number
- Operating voltage
- Quantity required

The name plate is located on the trolley of the base unit.

**Spare parts must conform to the manufacturer's technical specifications! Only use original spare parts from GEDA.**

For service or repair work, please contact our customer service department:

For the sales and customer service address, (refer to chapter 1.4 Manufacturer's name and address, page 14)

# 6 Disposal

At the end of its useful life, the machine may need to be inspected for operational safety in accordance with national regulations, disassembled correctly and scrapped in an environmentally friendly way according to national provisions.

**It is prohibited to use parts from a machine that is being scrapped in other machines or to assemble such parts to produce a new machine.**

**During disposal of the machine components, observe the following:**

- Drain and dispose of oil/grease in an environmentally friendly way.
- Recycle metal parts.
- Recycle plastic parts.

**Recommendation:**

Contact the manufacturer or commission a specialist company to handle disposal requirements in accordance with the applicable regulations.

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