GOLDSCHMIDT
Smart Rail Solutions

RETROFIT KIT
POWER UNIT GPU 3400 +S

TRANSLATION OF ORIGIN

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HISTORY OF CHANGES

Version	Date	Change / Description	Author	Approved by
0.0	2024-07-16	First edition	Goldschmidt Holding GmbH	Elektro-Thermit GmbH & Co. KG
1.0	2024-09-24	significant change	Goldschmidt Holding GmbH	Elektro-Thermit GmbH & Co. KG
2.0	2026-03-20	Restructuring, new rating plate	Goldschmidt Holding GmbH	Elektro-Thermit GmbH & Co. KG

STRUCTURE AND CONTENT OF SAFETY INSTRUCTIONS

This operation manual contains safety instructions that point out potential hazards and risks that could result in personal injury, property damage, and/or environmental damage. The way these safety instructions are structured, as well as their contents, is based on the ANSI Z535 standard.

Safety instructions related to personal injury

	DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.
	WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.
	CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

The contents of all safety instructions related to personal injury have been structured in conformity with the German SAFE method:

SIGNAL WORD/ SYMBOL	**S** – **S**chlagwort (keyword)
	A - **A**rt und Quelle der Gefahr (type and source of hazard)
	F - **F**olgen bei Nichtbeachtung (consequence of failure to observe the instruction)
	E - **E**ntkommen (how to avoid the hazard)

Safety instructions related to property damage and the environment

	NOTICE (white text on a blue background) indicates potential property damage.
	NOTICE (black text on a green background) indicates potential environmental damage.

General notes

	NOTICE (black text on a white background) indicates general information that needs to be taken into account when handling the product.

This operation manual has safety instructions at various points in order to ensure that meaningful information is provided in regard to potential hazard sources:

- Introductory safety instructions (at the beginning of the document)
- Section-specific safety instructions (at the beginning of a section)
- Embedded safety instructions (for specific instructions.

SAFETY INSTRUCTIONS

Safety instructions related to personal injury

DANGER	**RISK OF INJURY.** **Working under the influence of drugs and/or alcohol will result in serious injury.** **Consuming drugs and/or alcohol in the work area is strictly prohibited.** **Operators under the influence of drugs and/or alcohol are strictly prohibited from operating the equipment.**
WARNING	**RISK OF INJURY.** **There is a risk of injury due to fire and/or explosion.** **Damaged batteries and incorrectly handled batteries may behave in an unforeseeable manner, which can result in a fire or explosion and the associated risk of injury.** • **Do not, under any circumstance, use any damaged or modified batteries!** • **Properly dispose of all damaged batteries!** • **Do not expose the batteries to fire or extreme temperatures!** • **Follow all charging instructions and make sure to never charge the batteries outside of the temperature range specified in the manual provided by EGO (please refer to the EGO operation manual Chapter 1.4 "Further applicable documents" on page 4).**
WARNING	**RISK OF INJURY.** **There is a risk of injury posed by repairs that are not carried out correctly.** **Repairs to the profile grinder must be carried out exclusively by Elektro-Thermit GmbH & Co. KG or specially trained personnel.** • **Work on electrical system components must be carried out exclusively by qualified electricians.** • **Parts and components must be replaced exclusively with identical spare parts. When replacing a component, make absolutely sure to observe all the component manufacturer's instructions and specifications.**
CAUTION	**HEARING LOSS.** **Noise levels during grinding may result in permanent hearing loss.** **Always wear ear defenders.** **Individuals who are not working with or on the grinding machine must stay at a minimum distance of 1.5 m.** **Agree on clear and effective hand signals for communication.**
CAUTION	**RISK OF INJURY.** **There is a risk of injury due to abnormal vibrations.** **If you notice any abnormal vibrations, stop operating the machine immediately.**

⚠ CAUTION	**RISK OF INJURY.** **There is a risk of injury posed by hazards from the surroundings.** • **Please note that it is impossible for this operation manual to determine and list all the hazards that may be posed by the profile grinder's surroundings and by unforeseeable operating conditions.** • **Do not make any alterations to the profile grinder that could result in a change to the way it works.**
⚠ CAUTION	**RISK OF INJURY.** **Failure to pay attention and mental or physical fatigue will increase the risk of personal injury and property damage.** • **Always observe all legally required breaks.** • **Do not, under any circumstance, work alone. Make sure to rotate the task on a regular basis if possible.**

Safety instructions related to property damage

NOTICE	**Make sure that there are no highly flammable or explosive substances in the vicinity. If necessary, remove any combustible substances from the work area and ensure that there is adequate ventilation.**
NOTICE	**Do not place the Power Unit GPU 3400 +S in water or hose it down.**
NOTICE	**Genuine spare parts and/or accessories authorised by the manufacturer help ensure safety.** **Using any other accessories will void our liability for resulting damages.** **The manufacturer hereby disclaims all liability for any components retrofitted by the operating company.**
NOTICE	**Modifications, repairs and alterations are not permitted.**
NOTICE	**Keep safety signage legible. If safety signage gets damaged or goes missing, the operating company must provide for proper replacement.**
NOTICE	**The Operation manual Power Unit GPU 3400 +S must be read carefully before starting any operation, assembly, installation, and/or maintenance work!**
NOTICE	**A hard copy of the Operation manual Power Unit GPU 3400 +S must be available in legible condition at the location of use.**
NOTICE	**In addition to the information in this operation manual, due compliance is mandatory with the statutory regulations for accident prevention and environmental and occupational safety as well as the accident prevention regulations of the operating company.** **Strict compliance is also required with the safety regulations issued by the railway authorities for working on and near the tracks.**

Safety instructions related to the environment

Chargers and batteries must not be disposed of in domestic waste! In accordance with directive 2012/19/EU, electrical and electronic devices that are no longer in use must be collected separately and disposed of in a manner compliant with environmental legislation.
The disposal of rechargeable batteries is governed by the Battery Regulation (EU) 2023/1542.
Dispose of contaminated cleaning utensils properly.

NOTICE

Properly dispose of all packaging material.
For more detailed information, please refer to Chapter 11 "Disposal" on page 54.

NOTICE

See the Chapter 11.1 "Waste code numbers (WCN)" on page 54 for the waste code numbers.

RESIDUAL RISK WARNING

All the components in the Power Unit GPU 3400 +S have been designed in line with the state of the art. Regardless of this, however, their use may pose hazards to the operator and to third parties, the environment, and/or other equipment. Accordingly, the Power Unit GPU 3400 +S must be used only when it is in proper working condition. Moreover, it must always be used in conformity with all applicable safety rules and regulations and the Operation manual Power Unit GPU 3400 +S.

Risk of workplace injury

Welding and grinding work both take place in work environments where it is possible for welding and other work to be in progress at the same time and in the immediate area. The potential risk of injury is therefore greater, examples being:

- rail traffic on adjacent tracks,
- getting run over by construction site vehicles,
- getting snagged on construction site vehicles and other moving items of machinery,
- loss of footing on slippery, wet or oily surfaces,
- stumbling over obstacles,
- falling onto pointed or sharp objects,
- getting burned on hot surfaces.

Pay attention to the following precautionary measures:

- comply with all construction site regulations;
- Make sure that there is nobody else within the machine's danger zone
- always work with sufficient lighting;
- always be careful and pay attention;
- ensure sufficient ventilation;
- Do not, under any circumstance, leave the running drive unit unsupervised

ABBREVIATIONS

	Units of measurement
%	Percent
°C	Degrees Celcius
°F	Degrees Fahrenheit
Ah	Ampere-hour
dB (A)	Decibels at a specific measuring distance
hp	Horsepower (1 hp = 745.70 W)
HP	Metric horsepower (1 HP = 0.735 kW)
in	inch
kg	Kilogram
kW	Kilowatts
lb	pound
mm	Millimetres
rpm	Revolutions per minute
V	Volts
W	Watts

	General
max	maximum
min	minimum
e.g.	for example

GLOSSARY

Symbols and pictograms

Symbol	Explanation
	Mandatory action: read and follow the operation manual
	Mandatory action: wear protective clothing
	Mandatory action: wear safety footwear
	Mandatory action: wear work gloves
	Mandatory action: Wear safety eyewear
	Mandatory action: Wear hearing protection

Symbol	Explanation
	Mandatory action: wear a mask

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1 INTRODUCTION

Summary	This section provides information regarding the scope and content of this operation manual, as well as references to additional documents.

1.1 Information about this document

This operation manual describes how the Power Units GPU 3400 +S works and its components.

This operation manual must be:

- Considered part of the product
- Stored safely throughout the product's entire service life
- Passed on to any subsequent users

1.2 Validity

This operation manual (version 2.0 (Translation of origin)) is meant for the following machine configuration:

- Power Unit GPU 3400 +S with serial number GPU3400+S-0001,
- the grinding machine Robel 13.44/13.45 and
- the grinding machine Geismar MP6.

1.3 Requirements for operators

The operators who will be using the Power Unit GPU 3400 +S must:

- Be at least 18 years old
- Have the required qualifications for the job
- Have received training regarding how to operate the machine properly
- Have passed a medical assessment of fitness for work

NOTICE	**All applicable accident prevention regulations must be complied with without fail. Moreover, all operation and maintenance manuals must be followed without exception.**
NOTICE	**The operating company must make sure that its operating personnel has fully understood the operation manual's contents.**

1.3.1 Skills

Only individuals who meet the following requirements are allowed to work with and on the machine:

- Operators must have read and understood this operation manual in its entirety.

- Operators must be in perfect health and in full possession of their mental and physical faculties.
- Operators must be rested and must not be under the influence of any drugs, alcohol, or medications that could have a negative impact on their ability to react to situations and absorb information.
- Operators must be regularly briefed on impediments, hazards, fire safety rules, and special rules regarding what to do and what not to do.
- Operators must wear all required personal protection equipment in order to ensure that all occupational health and safety requirements are met.
- Operators must always observe their employer's rules and policies regarding safety and accident prevention and comply with all regulations that are relevant to personal safety and the safety of third parties.

1.3.2 Qualification level

In order to ensure that the machine will be operated safely and as intended, two different qualification levels must be considered:

- Operating personnel:

  Is trained on how to regularly operate the machine, receives continuous training regarding technical innovations, and has the required basic skills and understanding needed to work with the Power Unit GPU 3400 +S.

  During their initial training session, operators must receive training regarding the following main points:

  - Function description,
  - explanation of its components;
  - explanation of the potential hazards;
  - How to use the machine
  - Detection of faults and malfunctions.

- Maintenance staff/qualified personnel:
  Staff who have been specifically trained and instructed in maintenance, servicing and repair work on the machine.

Table 1-1 on page 2 lists the various individual tasks that apply to each of the two qualification levels.

Tab. 1-1 Qualification level

Occupation	Qualification level	
	Operating personnel	**Maintenance staff/qualified personnel**
Working with the machine, operating the machine	*x*	*x*

Tab. 1-1 Qualification level <continued>

Occupation	Qualification level	
	Operating personnel	**Maintenance staff/qualified personnel**
Cleaning the machine	*x*	*x*
Visual inspection	*x*	*x*
Identifying malfunctions and other issues	*x*	*x*
Assembly and disassembly		*x*
Maintenance work		*x*
Troubleshooting and repairs		*x*

1.3.3 Personal protection equipment

Provided that the operating company does not set forth any additional rules, policies, or guidelines, the following protection equipment must be worn when working with or on the profile grinder:

Tab. 1-2 Personal protection equipment

Symbol	Protective equipment	Use
	Wear protective clothing Welding clothing in conformity with EN 470-1; if necessary, high-visibility clothing in conformity with EN 471	• Transport, • Commissioning, • Operation, • Decommissioning, • Installation, • Disassembly • Maintenance and • Cleaning/care.
	Wear safety footwear (high-top S3 safety footwear in conformity with EN ISO 20345)	
	Wear work gloves (heavy-duty gloves in conformity with EN 388 (4242), EN 402; if necessary, heat-resistant work gloves in conformity with EN 407)	

Tab. 1-2 Personal protection equipment <continued>

Symbol	Protective equipment	Use
	Wear safety eyewear	- Operation (grinding)
	Wear a mask	
	Wear ear defenders.	

1.4 Further applicable documents

NOTICE	**Passing the Operation manual Power Unit GPU 3400 +S on to third parties requires written consent from Elektro-Thermit GmbH & Co. KG.**
NOTICE	**The manufacturer's technical documentation is protected by copyright.**
NOTICE	**In addition to the information in this Operation Manual, due compliance is mandatory with the statutory regulations for accident prevention and environmental protection as well as the accident prevention regulations of the operating company.** **Compliance is also required with the safety regulations issued by the railway authorities for working on and near the tracks.**

Additional applicable documents are listed in the tables below and are an integral part of the included contents:

Tab. 1-3 Additional applicable documents – supplier documentation

Technical documentation (supplier documentation)
Operation manual for EGO Power+ 56V ARC lithium™ battery [EGO] and charger
Operation manual for profile grinder Robel 13.44/13.45
Operation manual for profile grinder Geismar MP6

Tab. 1-4 Additional applicable documents – manufacturer documentation

Technical documentation (manufacturer documentation)
Work instructions for the relevant Thermit® welding process

1.5 Scope of delivery

NOTICE **The EGO Power+ 56V ARC lithium™ batteries and the charger are not included.**

The included contents, as defined contractually, are listed in the following table (please refer to Table 1-5 on page 5):

Tab. 1-5 Scope of delivery

Quantity	Designation
1	Power Unit GPU 3400 +S
2	EGO Power+ 56V ARC lithium™ rechargeable battery
2	Charger CH5500E

2 CONSTRUCTION DESCRIPTION

Summary	An overview of the Power Unit GPU 3400 +S, the names of the various sub-assemblies and components, and what they do.

NOTICE	**Unauthorised alterations to the building are not permitted.** **The manufacturer hereby disclaims all liability for any resulting personal injury and/or damages to machinery and other property.**
NOTICE	**The manufacturer hereby disclaims all liability for any improper or unintended use and any resulting injury and/or damages.**
NOTICE	**Any other use of the Power Unit GPU 3400 +S, including any use that extends beyond the intended use, is impermissible.**

2.1 Function description

The Power Unit GPU 3400 +S is intended solely as a (replacement) drive system for profile grinders.

2.2 Intended use

The drive system must always be operated in strict compliance with the specified operating conditions (see Chapter 2.3 "Operating conditions" on page 6).

The Power Unit GPU 3400 +S is intended solely as a (replacement) drive system for profile grinders.

Any other use of the drive system or of its individual components does not constitute 'intended use'.

2.3 Operating conditions

NOTICE	**Do not operate the machine if real conditions differ from these operating conditions.**
NOTICE	**Before putting the machine into operation, always check to make sure that all operating conditions are met.**
NOTICE	**If the batteries have got too cold (e.g., overnight), let the machine run idle for a few minutes so that the batteries will be able to reach their operating temperature.** **Running the motor under load while the batteries are too cold will shorten their lifespan substantially.**

Table 2-1 on page 7 describes the operating conditions in greater detail:

Tab. 2-1 Operating conditions Power Unit GPU 3400 +S

Operating conditions	
Ambient temperature when operating the machine	-20 °C to +40 °C (-4 °F to +104 °F)
Ambient temperature when charging the batteries	+5 °C to +40 °C (+41 °F to +104 °F)

The following conditions must be met while the machine is being operated:

- No protective equipment or other components can be shut down.
- The machine must always be operated in technically perfect condition.
- All inspection and maintenance intervals must be complied with.
- Do not operate the machine in hazardous locations or in the vicinity of flammable or explosive liquids or gases.
- The work area must be adequately lighted in order to make it possible to identify potential hazards in a timely manner.
- Only ever operate the machine in a dry work space.
- Do not operate the machine on gradients of 10° or more.

2.4 Main sub-assemblies

Figure 2-1 on page 7 shows the main sub-assemblies on the Power Units GPU 3400 +S.

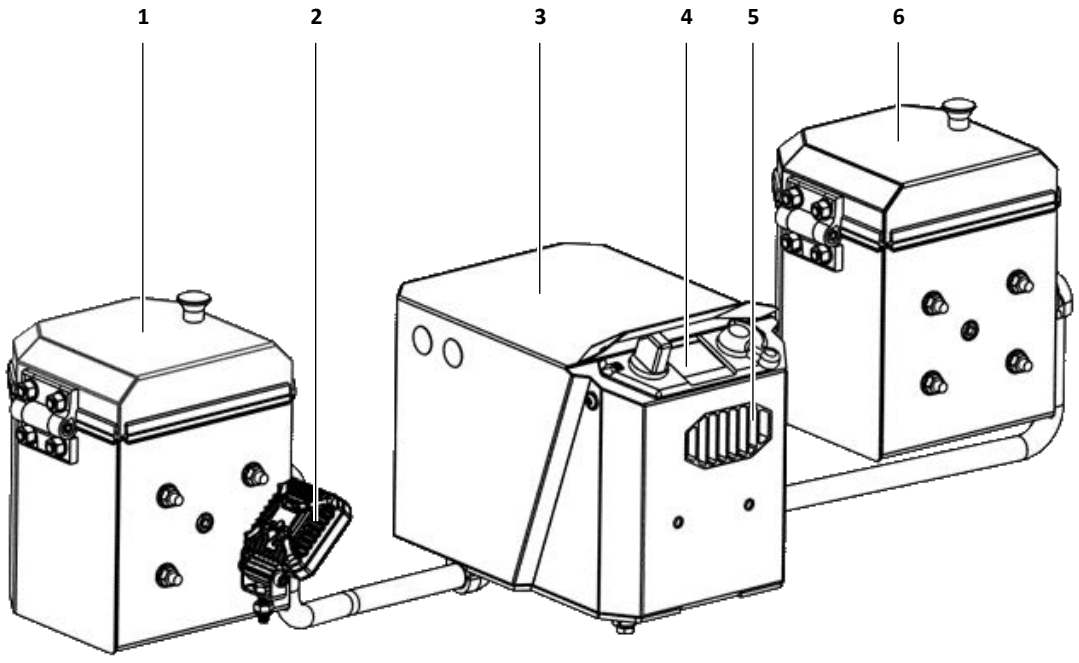


Fig. 2-1 Main sub-assemblies Power Unit GPU 3400 +S

1	Battery container	3	Drive motor	5	Ventilation
2	Lighting	4	LED display	6	Battery container

2.4.1 Rating plate

Figure 2-2 on page 8 is shown by the rating plate.

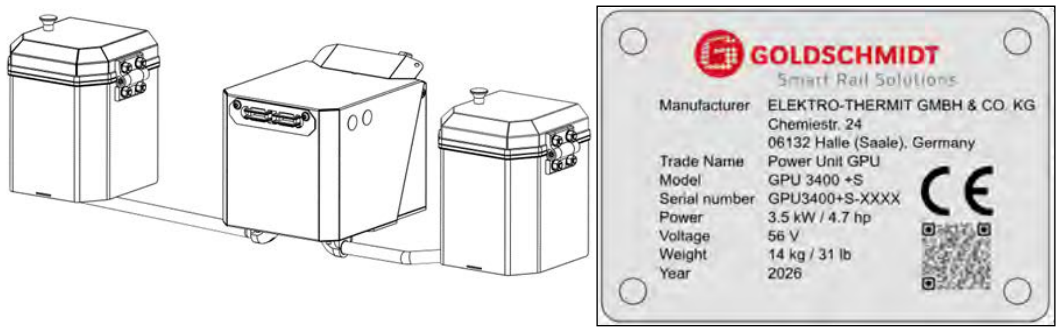


Fig. 2-2 Rating plate

The rating plate contains the following information:

- Manufacturer information,
- Product name,
- the product model,
- the serial number,
- the electrical rating,
- Voltage,
- the dead weight,
- the year of manufacture,
- the CE marking and
- the QR-Code for the operation manual.

NOTICE **The operating company must ensure that this type plate is replaced in the event of damage or loss.**

2.5 Operator control and display elements

The Power Unit GPU 3400 +S features a control unit on its handlebar.

The following section describes the individual controls and indicators on this unit.

2.5.1 LED display

The Power Unit GPU 3400 +S features a LED display. The illuminated LED display is located on the drive unit and gives an overview of the grinding machine's status (see Figure 2-3 on page 9).

When the electronics are on, the LED display will be turned on automatically as well. When the motor is turned off, the LED display will be turned off automatically.

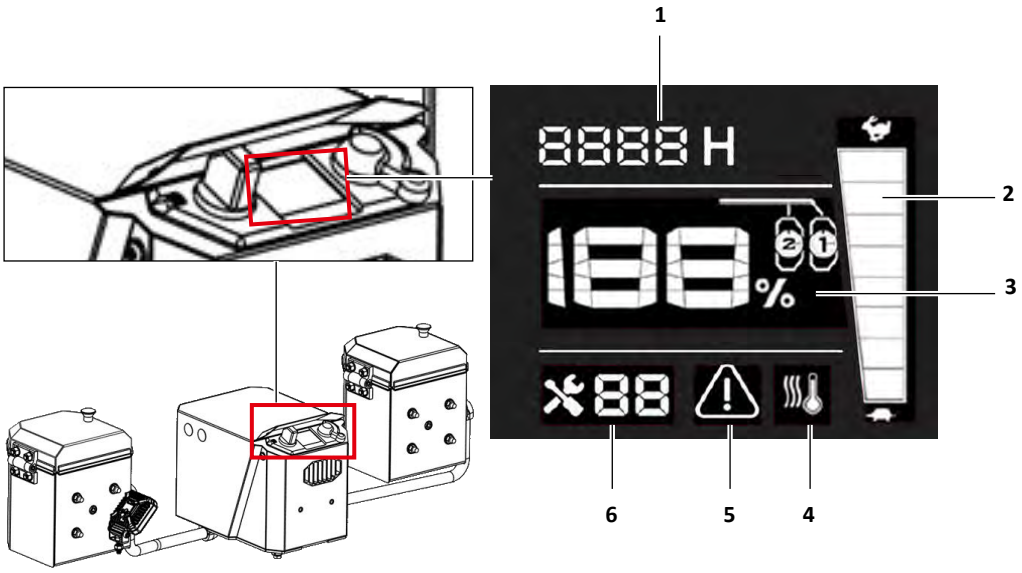


Fig. 2-3 LED display

1	Total run hours	3	Charge status indicator	5	Blockage indicator
2	Speed display	4	Overheating indicator	6	Fault indication

2.5.2 Key switch

The Key switch is found on the left side of the control unit (Figure 2-4 on page 9) and is used to turn on the electronics and the motor.

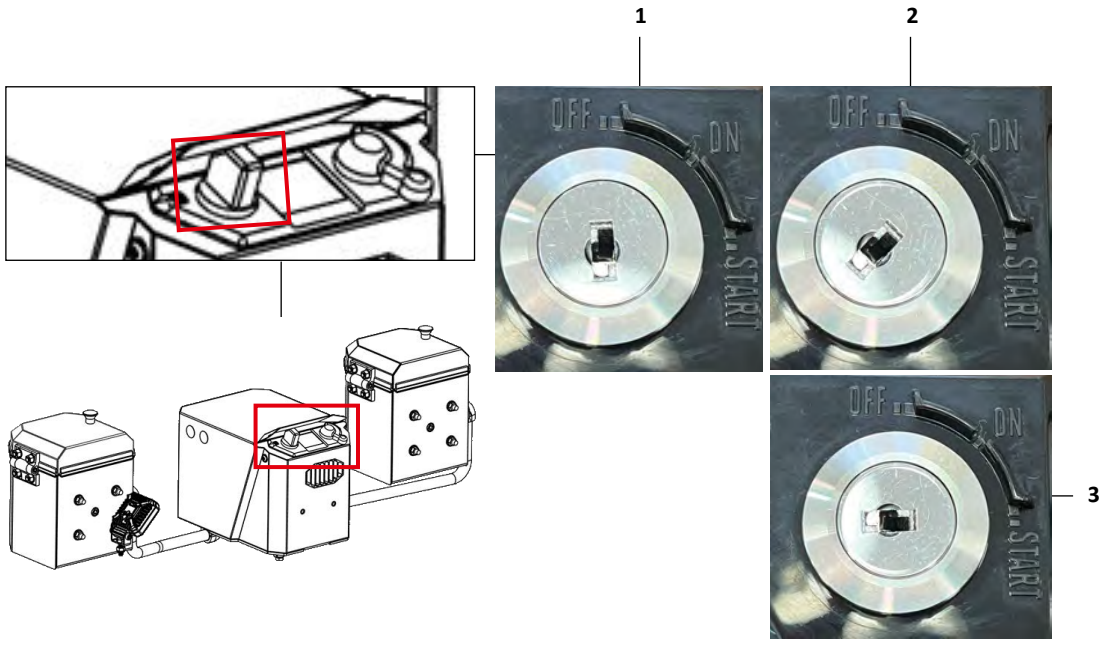


Fig. 2-4 Key switch

The Key switch has the following positions available:

Position		Description
1	"OFF" position	Turning the Key switch to the "OFF" position, will turn off the motor and the LED display.
2	"ON" position	Turning the Key switch to the "ON" position will turn on the electronics and the LED display.
3	"START" position	Turning the Key switch to the "START" position will switch on the motor.

2.5.3 Control lever

The Control lever is found on the right side of the control unit (Figure 2-5 on page 10). With the Control lever, the speed of the grinding wheel can be controlled manually.

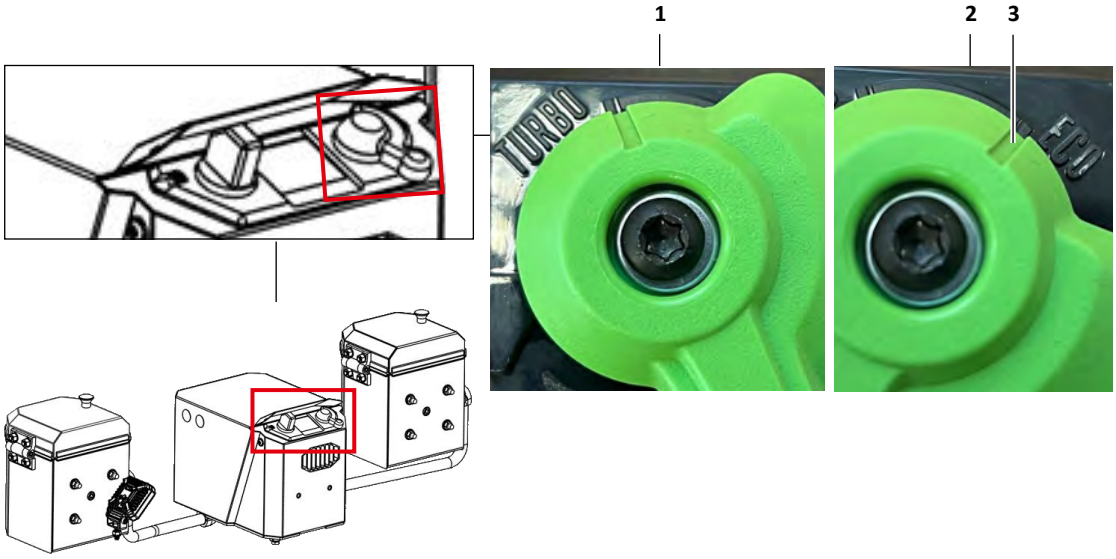


Fig. 2-5 Control lever

The Control lever can be moved to the following positions and in between:

Position		Description
1	"TURBO" position 	Moving the Control lever in the "TURBO" position will set the highest possible speed for the grinding process.
2	"ECO" position 	Moving the Control lever in the "ECO" position will set the lowest possible speed for the grinding process.
3	Position indicator	Using the position indicator on the Control lever, the desired speed can be set.

The speed setting of the grinding wheel is also displayed as a scale graphic on the LED display:

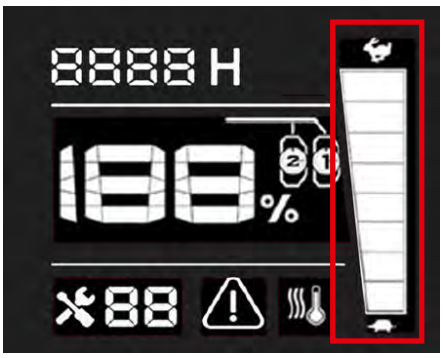


Fig. 2-6 LED display – speed

2.6 Colours and safety labels

2.6.1 Colouring

Table 2-2 on page 11 lists the colours for the various Power Units GPU 3400 +S components:

Tab. 2-2 Colouring

Colour name / RAL code	Components
Traffic grey (RAL 7043)	Display housing, ventilation
Golden yellow (RAL 1004)	Frame, drive unit, battery container

2.6.2 Safety labels

NOTICE

If safety labels are damaged or go missing at any point in the machine's service life, the operating company must ensure that they are replaced properly. Make sure to check that the safety labels are in place and in good condition on a regular basis.

On the drive unit of the Power Unit GPU 3400 +S, the mandatory action and warning labels are shown in Figure 2-7 on page 12 .

Fig. 2-7 Safety labels

1	Mandatory action: read and follow the operation manual

2.7 Safety systems

The following guards and safety devices are installed on the machine in order to prevent personal injury and environmental and property damage (please refer to Figure 2-8 on page 12).

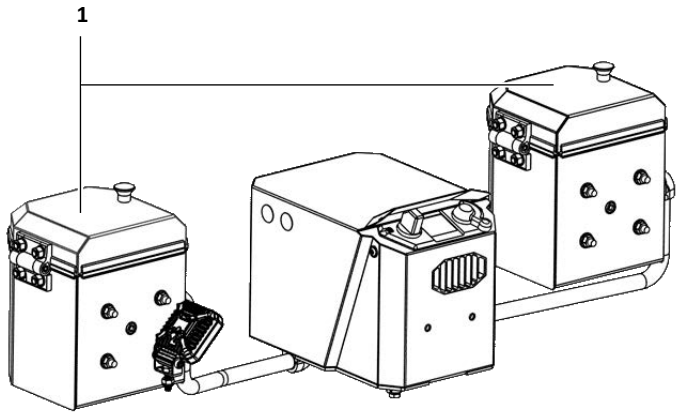


Fig. 2-8 Safety systems

Designation		Description
1	Battery compartment cover (with toggle latch)	The Battery compartment cover (with toggle latch) protects the EGO Power+ 56V ARC lithium™ batteries from sparks, moisture, etc. The Battery compartment cover (with toggle latch) must always be closed and latched in place during grinding.

2.8 Fire extinguisher

An operational CO_2 fire extinguisher must always be accessible in the immediate vicinity of the work area.

NOTICE **This fire extinguisher is not included and accordingly is the responsibility of the operating company.**

2.9 What to do in case of emergency

If an emergency occurs, turn off the machine immediately and leave the danger zone as quickly as possible.

In the event of personal injury, provide first aid immediately.

In the event of a fire, immediately initiate the required steps for fire-fighting.

2.10 Accessories

NOTICE **Annex D - List of spare parts on Page V lists additional accessories.**

2.10.1 Battery

NOTICE **2 EGO Power+ 56V ARC lithium™batteries are required.**

NOTICE **Observe the battery and charger operation manuals provided by EGO when using and charging the batteries!**

The batteries are EGO Power+ 56V ARC lithium™ rechargeable batteries (12 Ah).

Each battery features a charge status indicator. The various battery modes are described in Table 2-3 on page 13 below:

Tab. 2-3 Battery LED indicator modes

Modes		Description
Five LEDs light up green (continuous light)		80% ≤ charge level ≤ 100%
Four LEDs light up green (continuous light)		60% ≤ charge level <80%

Tab. 2-3 Battery LED indicator modes <continued>

Modes		Description
Three LEDs light up green (continuous light)		40% ≤ charge level < 60%
Two LEDs light up green (continuous light)		20% ≤ charge level < 40%
One LED lights up green (continuous light)		10% ≤ charge level < 20%
One LED flashes red		Charge level < 10%
Five LEDs flash red		Low voltage The battery is almost empty and needs to be charged.
Five LEDs light up red (continuous light)		The battery has overheated and needs to cool down.
No light on any of the LEDs		The hydraulic pump is switched off.

The control unit's LED display will show the batteries' charge status and the number of batteries that are inserted (please refer to Figure 2-9 on page 15).

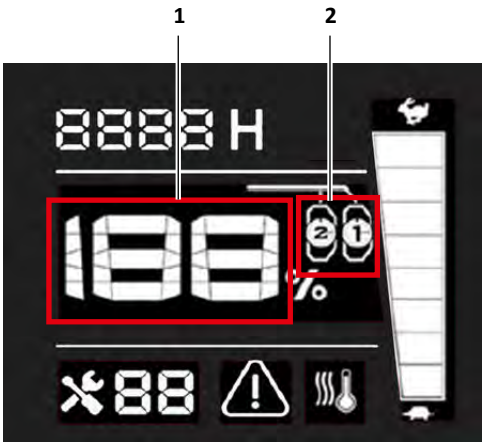


Fig. 2-9 LED display – battery charge status

Designation		Description
1	Charge status indicator	The Charge status indicator will show the current charge level of the battery or batteries as a percentage. With only one battery inserted, the electric drive operates at just 60% of its maximum power.
2	Battery quantity indicator	The battery quantity indicator will show the number of inserted batteries and the position. If both indicators light up, two batteries have been inserted. If just one indicator lights up, only one battery has been inserted.

2.10.2 Charger

NOTICE **Observe the battery and charger operation manuals provided by EGO when using and charging the batteries!**

To charge the batteries correctly, make sure to use a "700 W RAPID+ Charger CH7000E" charger.

3 ASSEMBLY AND INSTALLATION

Summary	Explains the correct assembly and installation procedures by means of step-by-step instructions.

NOTICE **All inspection and installation work must only be carried out by trained specialist staff.**

3.1 Condition on delivery

NOTICE **Fixing materials are included in the scope of delivery.**

In Figure 3-1 on page 16, the delivered condition is shown.

Fig. 3-1 Delivered condition

3.2 Installation

3.2.1 Fitting to the Robel grinding machine 13.44/13.45

NOTICE **These assembly instructions apply to the installation of the Power Units GPU 3400 +S on the Robel 13.44/13.45 grinding machine.**

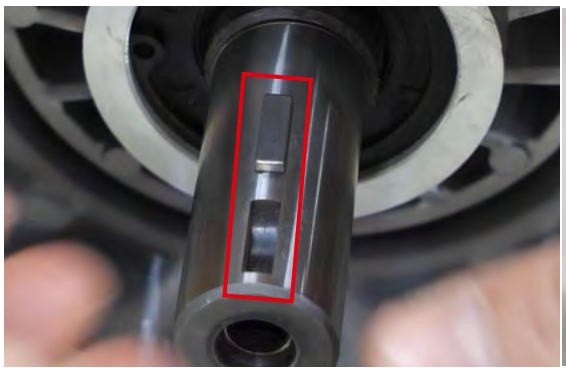
Fig. 3-2 installed Power Unit GPU 3400 +S on Robel 13.44/13.45

Follow the instructions below to ensure the installation is carried out correctly:

1. Select a suitable key for the shaft-hub connection.

2. Grease the shaft.

3. Fit the 2 keyways into the hub of the shaft.




4. Fit the drive unit onto the grinding machine.

⚠ CAUTION

CRUSH HAZARD.
There is a risk of crushing your hands when fitting the drive unit onto the grinding machine.
Take care when setting it down.

5. Tighten the drive shaft.

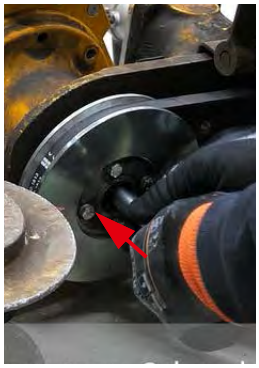
   Apply a medium-strength threadlocker to the inch screw (3/8”-24UNF x 2”) and tighten it by turning it clockwise using a 6 mm Allen key.

   Then tighten the screw using a torque wrench (20 Nm).

NOTICE

Once the threadlocker has been applied, the bolt must be tightened as soon as possible.





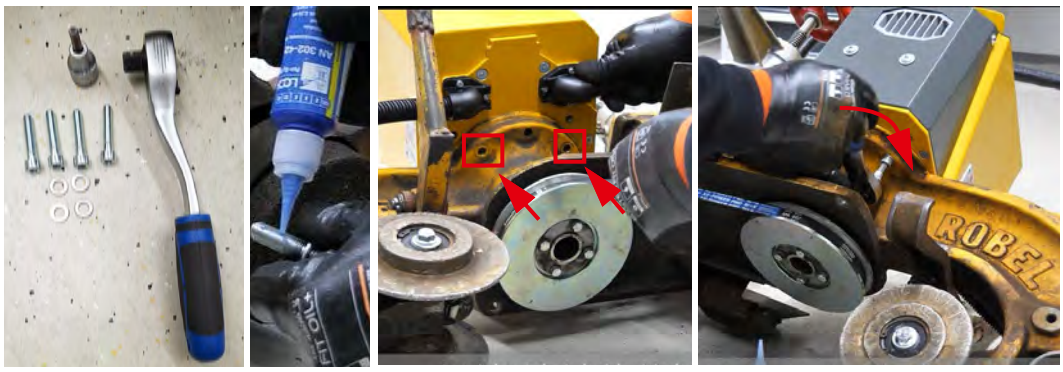

6. Screw on the drive unit (2 screws per side).

Apply a medium-strength threadlocker to the cylinder screw M 8 x 40 and tighten it by turning it clockwise using a 6 mm Allen key

.

Then tighten the screws using a torque wrench (20 Nm).

NOTICE	**Once the threadlocker has been applied, the bolt must be tightened as soon as possible.**
NOTICE	**Ensure that the drive unit is in an upright position and the boreholes align.**



7. Fit the battery containers (2 screws per battery container).

   Position the battery container on the grinding machine.

   Apply a medium-strength threadlocker to the hexagon screw M 10 x 20 and tighten it by turning it clockwise using a 17 mm open-ended spanner.

   Then tighten the screws using a torque wrench (40 Nm).

⚠ CAUTION	**CRUSH HAZARD.** **There is a risk of crushing your hands when fitting the battery container onto the grinding machine.** **Take care when setting it down.**
NOTICE	**Once the threadlocker has been applied, the bolt must be tightened as soon as possible.**

Repeat for the second battery container.

NOTICE **To tighten the second screw, the lighting unit must be folded backwards..**

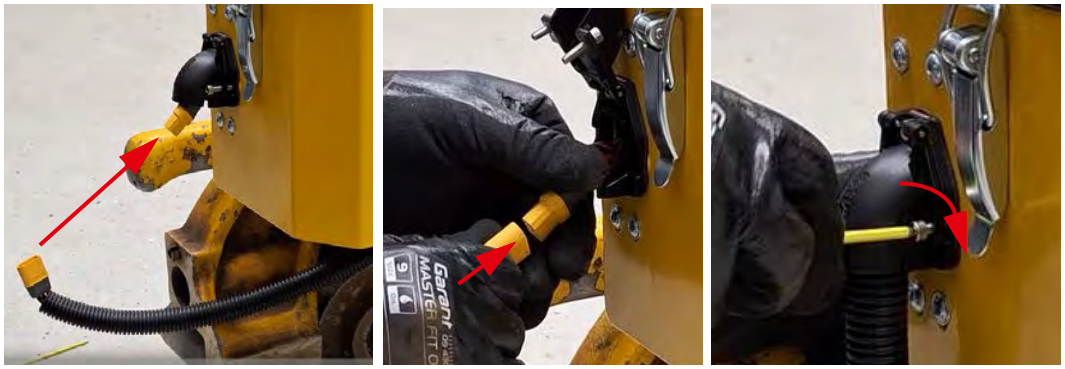
8. Connect the cables.

   Loosen the M6 cylinder screws M 4 x 16 on the cable cover by turning them anti-clockwise with a 3 mm Allen key (2 screws per cable cover).

   Open the cable cover and pull the connector slightly outwards.

   Connect the cables and push the cable connection back into the cable guide until it disappears inside the cable cover.

   Close the cable cover and tighten the cylinder screws M 4 x 16 by turning them clockwise with a 3 mm Allen key (2 screws per cable cover).



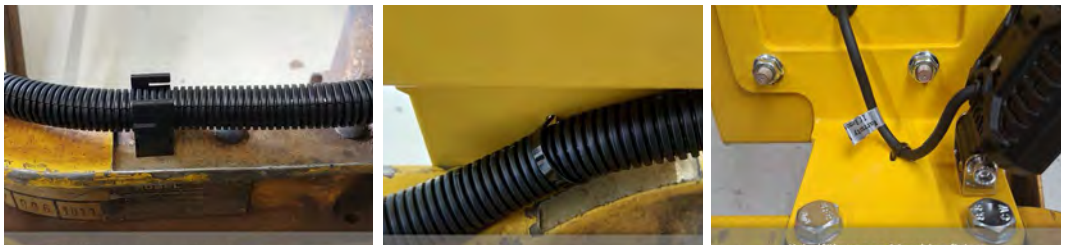
   Loosen the M6 cylinder screws M 4 x 16 on the cable cover by turning them anti-clockwise with a 3 mm Allen key (2 screws per cable cover).

   Open the cable cover and pull the two connectors slightly outwards.

   Connect the 2 cables and push the cable connection back into the cable guide until it disappears inside the cable cover.

   Tighten the M5 pan-head screw (M5 x 70) by turning it clockwise with a 3 mm Allen key (2 screws per cable cover).

9. Attach the cable guide to the grinding machine.



4 COMMISSIONING

Summary	Instructions that explain how to prepare the Power Unit GPU 3400 +S for operation.

NOTICE

If you detect any issues, report them to your supervisor immediately. Do not put the machine back into operation until after these issues have been fixed and you receive approval for operating it again.

The following must be carried out before putting the machine into operation:

1. Check all included contents to make sure they are complete.

   If any contents are missing, please contact the customer service team (please refer to Chapter 12 "Customer Service" on page 56).

2. Visually inspect the Power Units GPU 3400 +S and the batteries for damages (cracks, broken parts, deformation, etc.).

   Damaged components and machine parts will need to be replaced. Contact the customer service team (please refer to Chapter 12 "Customer Service" on page 56).

3. Make sure that the batteries have been inserted correctly (please refer to Chapter 5.1 "Inserting the batteries" on page 26).

4. Check the batteries' charge status (please refer to Table 2-3 in Chapter 2.10.1 "Battery" on page 13).

5. Make sure that the Battery compartment cover (with toggle latch) is securely latched (2 units).

6. Check all screw connections to make sure they are secure.

   Retighten the screw connections if necessary (please refer to Chapter 9.5 "Checking the screw connections to make sure they are secure" on page 48).

7. Check that the grinding wheel has been installed correctly.

4.1 Functional test

WARNING

RISK OF INJURY.

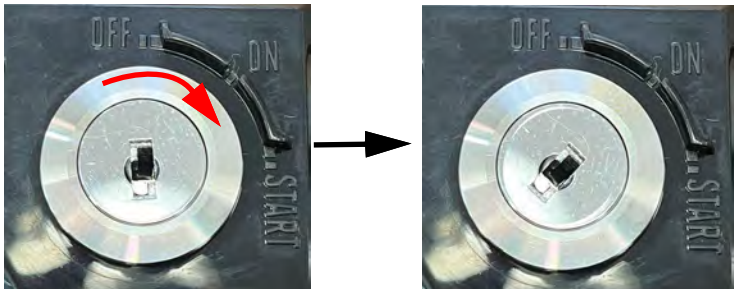
There is a risk of serious injury if the operator touches the rotating grinding wheel.

- **Keep your hands and legs away from the rotating grinding wheel,**
- **Remove all batteries before replacing the grinding wheel or carrying out any maintenance work.**
- **Individuals not working with or on the profile grinder must stay outside the danger zone.**
- **Always wear the required personal protection equipment!**

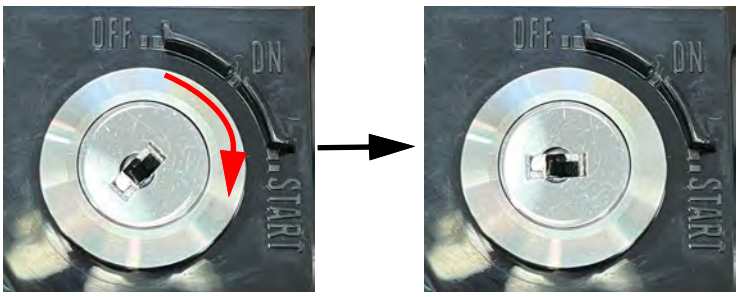
Follow the steps below in order to carry out the functional test properly.

1. Go through all the preparation steps (please refer to Chapter 4 "Commissioning" on page 22).
2. Hold the profile grinder firmly by the handlebar.
3. Adjust the handlebar to the desired position if necessary (see the operating manual for the corresponding profile grinder).
4. Insert the key into the key switch on the left side of the control unit.
5. Turn the key 45° clockwise to the "ON" position to turn on the electronics.

   The LED display will be turned on automatically.



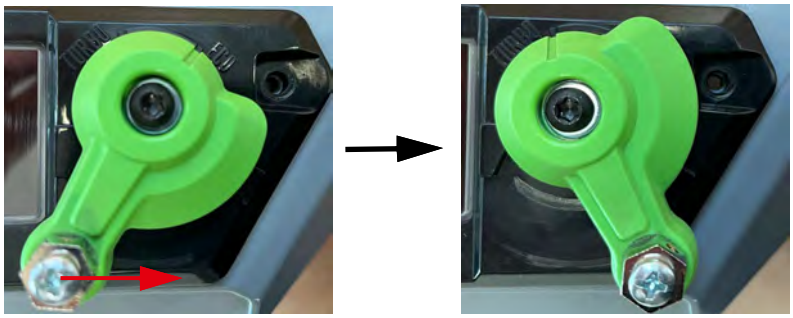
6. Turn the key another 45° clockwise to the "START" position to start the engine.



7. Using both hands, hold the profile grinder firmly by the handlebar.

8. Start the grinding process (see the operation manual for the corresponding profile grinder).

9. Move the control lever to the "TURBO" position to set the machine to its highest speed.



10. Let the grinding process run at full speed for one minute. Check that the grinding wheel is running smoothly and does not wobble or produce abnormal vibrations.

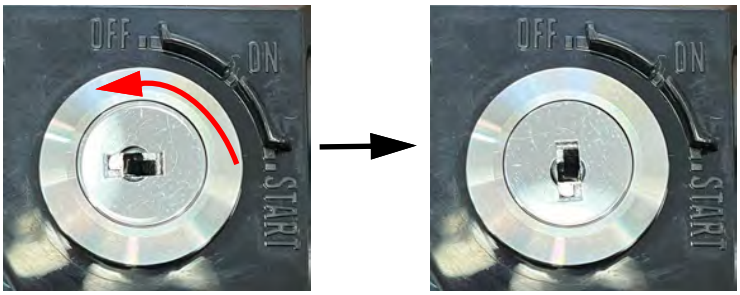
    The functional test is considered to be passed if the grinding wheel runs smoothly, does not wobble, and does not produce any abnormal vibrations.

NOTICE	**If there are any issues, stop the functional test and start troubleshooting (please refer to Chapter 8 "Fault, cause and elimination" on page 39).** **You can resume operation after fixing the detected issues.**

11. End the grinding process (see the operation manual for the corresponding profile grinder).

12. Turn the key anticlockwise to the "OFF" position to turn off the electronics and the motor.

    The LED display will be switched off automatically.



5 OPERATION

Summary	Instructions used to explain the main functions of the Power Unit GPU 3400 +S.

⚠ CAUTION	**HEARING LOSS.** **Noise levels during grinding may result in permanent hearing loss.** **Make sure to always wear hearing protection.** **Individuals who are not working with or on the grinding machine must stay at a minimum distance of 1.5 m (59,05 Zoll).** **Agree on clear and effective hand signals for communication.**
NOTICE	**If you detect any issues, report them to your supervisor immediately. Do not put the machine back into operation until after these issues have been fixed and you receive approval for operating it again.**
NOTICE	**Wear personal protection equipment.**
NOTICE	**Do not place the Power Unit GPU 3400 +S in water or hose it down.**

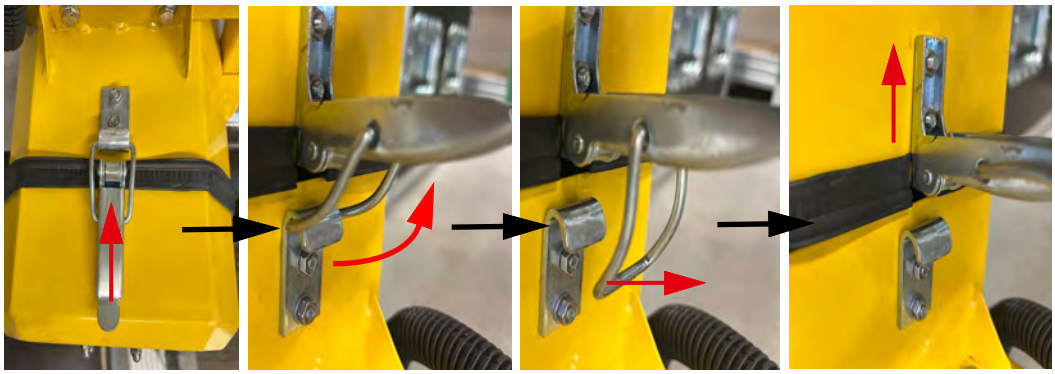
5.1 Inserting the batteries

⚠ WARNING	**RISK OF INJURY.** **There is a risk of injury due to fire and/or explosion.** **Damaged batteries and incorrectly handled batteries may behave in an unforeseeable manner, which can result in a fire or explosion and the associated risk of injury.** • **Do not, under any circumstance, use any damaged or modified batteries!** • **Properly dispose of all damaged batteries!** • **Do not expose the batteries to fire or extreme temperatures!** • **Follow all charging instructions and make sure to never charge the batteries outside of the temperature range specified in the manual provided by EGO (see the EGO operation manual** Chapter 1.4 "Further applicable documents" on page 4**).**
NOTICE	**Do not, under any circumstance, use damaged batteries.**
NOTICE	**Maximum performance can only be achieved with two batteries inserted.** **With only one battery inserted, the electric drive operates at just 60% of its maximum power.**
NOTICE	**Observe the battery and charger operation manuals provided by EGO when using and charging the battery!**

NOTICE **Make sure to only use EGO Power+ 56V ARC lithium™ batteries (two units) or other batteries approved by the manufacturer.**

Follow the steps below to insert the batteries correctly:

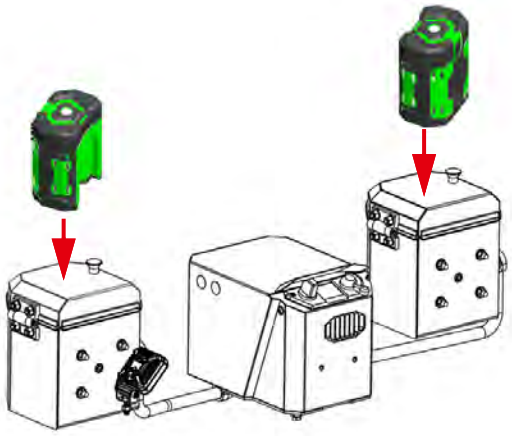
1. Open the toggle latch and then open the Battery compartment cover (with toggle latch).



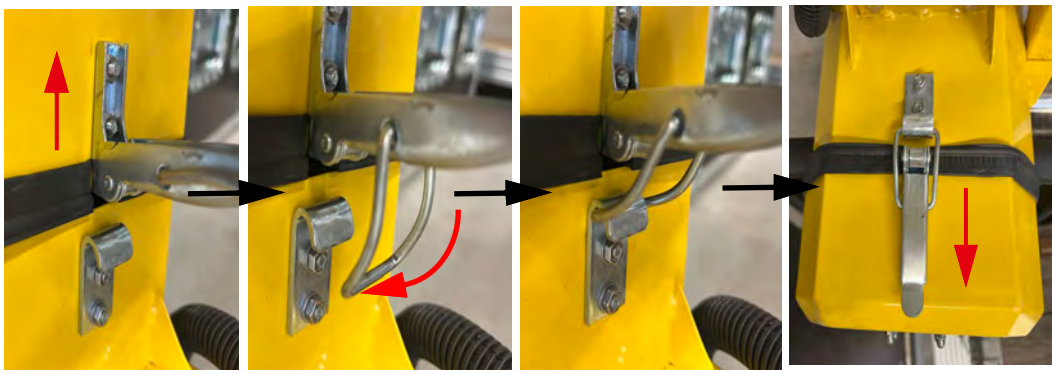
2. Align the battery ribs with the connector guide slots and slide the battery all the way into the battery holder.

   When the battery has been inserted properly all the way, you will hear it click into place.

   Repeat for the second battery.



3. Close the Battery compartment cover (with toggle latch) and then close the toggle latch.



5.2 Grinding

⚠ WARNING	**HOT SURFACES.** **Hot surfaces pose a burn hazard.** **The grinding wheel and/or the rail may be hot after grinding and result in burns or other irreversible injuries if touched.** • **Make sure to always wear all necessary personal protection equipment (especially work gloves).** • **Let the components cool down first before changing the grinding wheel or carrying out maintenance work, and** • **Let the rail cool down after welding (below 40° C / 104° F).**
⚠ WARNING	**RISK OF INJURY.** **There is a risk of serious injury if the operator touches the rotating grinding wheel.** **Keep your hands and legs away from the rotating grinding wheel, and always wear the required personal protection equipment..**
⚠ CAUTION	**CRUSH HAZARD.** **There is a risk of injury by crushing when positioning the unit on the rail.** **Never reach between the rail and the profile grinder.** **Always wear the required personal protection equipment.**

Follow the steps below in order to do grinding work correctly:

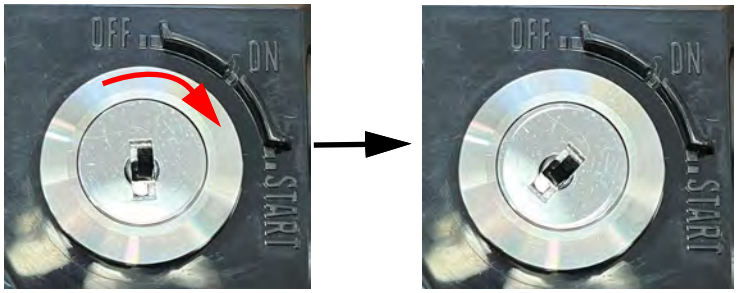
1. Go through all the preparation steps (please refer to Chapter 4 "Commissioning" on page 22).
2. Position the profile grinder and the attached Power Unit GPU 3400 +S on the rail.

   See the operation manual for the corresponding profile grinder.

⚠ CAUTION	**CRUSH HAZARD.** **There is a crush hazard when setting the machine on a rail.** **Do not, under any circumstance, reach between the rail and the profile grinder.** **To set down the machine, use the handles intended for that purpose.**

3. Hold the profile grinder firmly by the handlebar.
4. Insert the key into the key switch on the left side of the control unit.
5. Turn the key 45° clockwise to the "ON" position to turn on the electronics.

   The LED display will be turned on automatically.



6. Turn the key another 45° clockwise to the "START" position to start the engine.

7. Using both hands, hold the profile grinder firmly by the handlebar.
8. Start the grinding process.

   See the operation manual for the corresponding profile grinder.

⚠ CAUTION

RISK OF INJURY.
There is a risk of injury due to abnormal vibrations.
If you notice any abnormal vibrations while working with the profile grinder, stop operating the machine immediately.
Turn the profile grinder off until the cause of the vibrations has been found and fixed.

9. Move the Power Unit GPU 3400 +S as necessary to grind the rail head.
10. Adjust the speed if necessary during grinding (please refer to Chapter 5.3 "Adjusting the speed" on page 30).
11. End the grinding process.

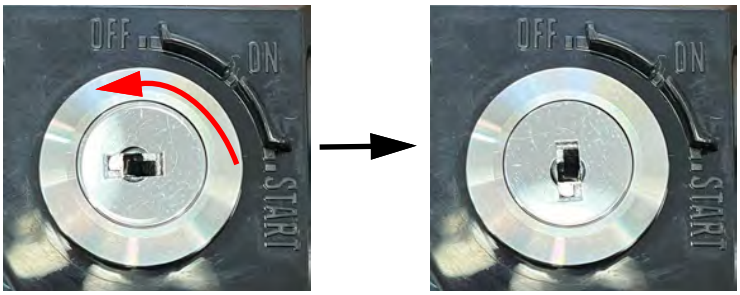
    See the operation manual for the corresponding profile grinder.

NOTICE

Make absolutely sure that the grinding wheel has stopped before removing the grinding machine from the rail.

12. Turn the key anticlockwise to the "OFF" position to turn off the electronics and the motor.

    The LED display will be switched off automatically.



13. Remove the key from the key switch on the left-hand side of the control unit.
14. Remove the profile grinder and the attached Power Unit GPU 3400 +S from the rail.

⚠ CAUTION	**CRUSH HAZARD.** **There is a crush hazard when removing the machine from the rail.** **Do not, under any circumstance, reach between the rail and the profile grinder.** **To remove the machine from the rail, use the handles intended for that purpose.**
⚠ CAUTION	**RISK OF INJURY.** **There is a risk of injury posed by the machine's weight.** **It Power Unit GPU 3400 +S weighs 14 kg without batteries.** **There is a risk of injury when the machine is being transported.** **Remove the batteries before transport.** **Wear safety footwear.**

5.3 Adjusting the speed

Follow the steps below to adjust the machine's speed correctly:

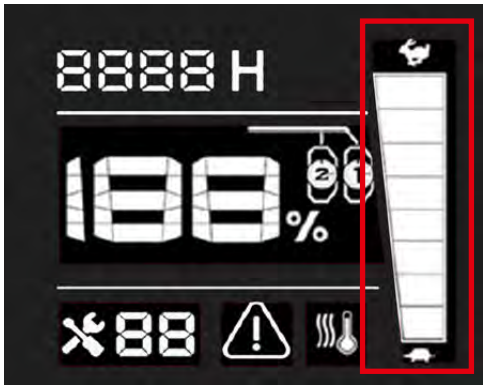
1. Move the Control lever on the control unit to the position you want in order to adjust the speed.

   The position indicator shows the speed you have set.

   Move the Control lever on the control unit to the right to increase the speed. The "TURBO" position marks the fastest possible speed.

   Move the Control lever on the control unit to the left to decrease the speed. The "ECO" position marks the slowest possible speed.

The control unit's LED display will show the set speed.



5.4 Removing the batteries

WARNING

RISK OF INJURY.
There is a risk of injury due to fire and/or explosion.
Damaged batteries and incorrectly handled batteries may behave in an unforeseeable manner, which can result in a fire or explosion and the associated risk of injury.

- **Do not, under any circumstance, use any damaged or modified batteries!**
- **Properly dispose of all damaged batteries!**
- **Do not expose the batteries to fire or extreme temperatures!**
- **Follow all charging instructions and make sure to never charge the batteries outside of the temperature range specified in the manual provided by EGO (please refer to the EGO operation manual** Chapter 1.4 "Further applicable documents" on page 4**).**

NOTICE

Do not, under any circumstance, use damaged batteries.

NOTICE

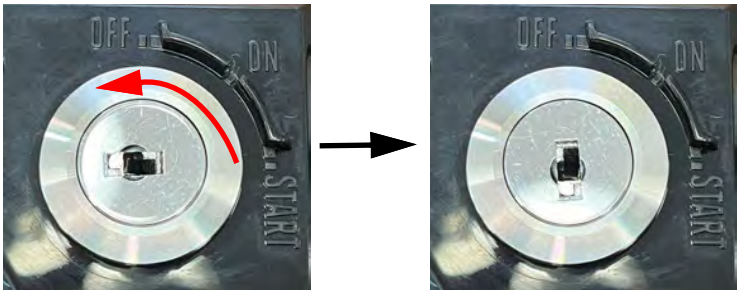
Maximum performance can only be achieved with two batteries inserted.
With only one battery inserted, the electric drive operates at just 60% of its maximum power.

NOTICE	**Observe the battery and charger operation manuals provided by EGO when using and charging the battery!**
NOTICE	**Make sure to only use EGO Power+ 56V ARC lithium™ batteries (two units) or other batteries approved by the manufacturer.**

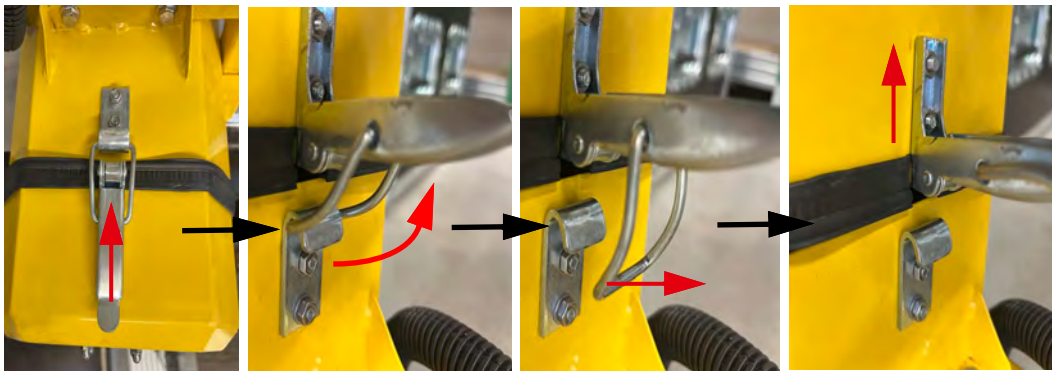
Follow the steps below to remove the batteries correctly:

1. Turn the key anticlockwise to the "OFF" position to turn off the electronics and the motor.

   The LED display will be switched off automatically.

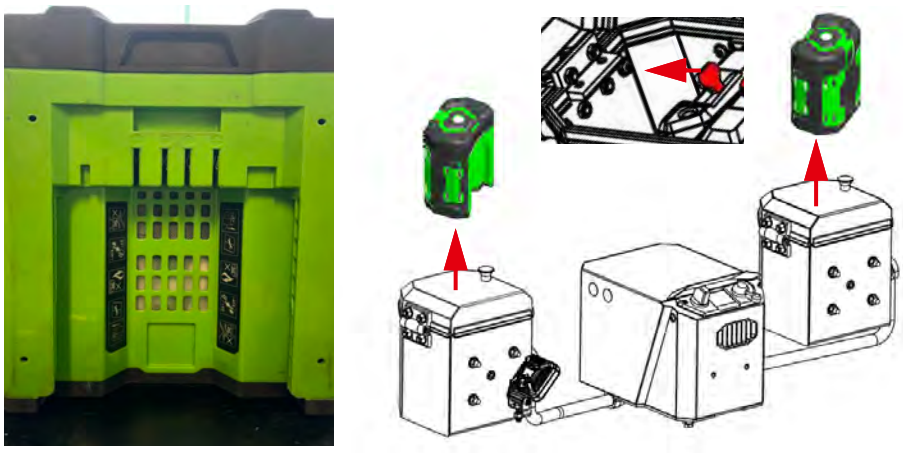


2. Open the toggle latch and then open the Battery compartment cover (with toggle latch).

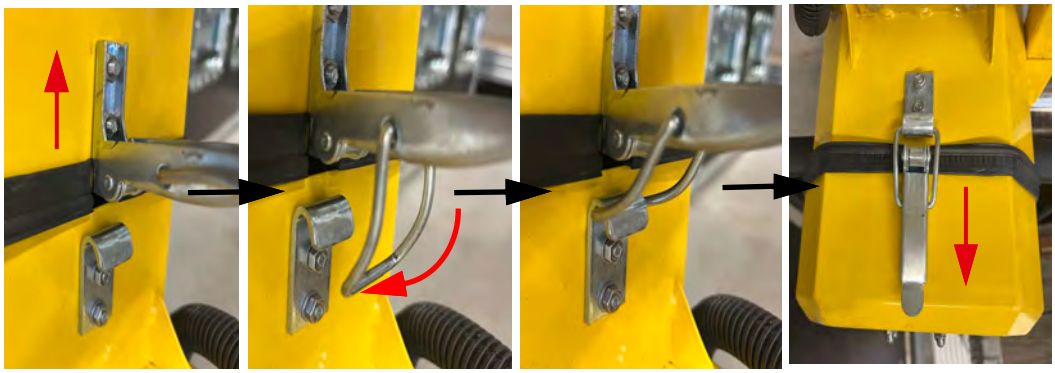


3. Press the actuator down to the left and pull the rechargeable battery upwards and out of its holder.

   Repeat for the second battery.



4. Close the Battery compartment cover (with toggle latch) and then close the toggle latch.

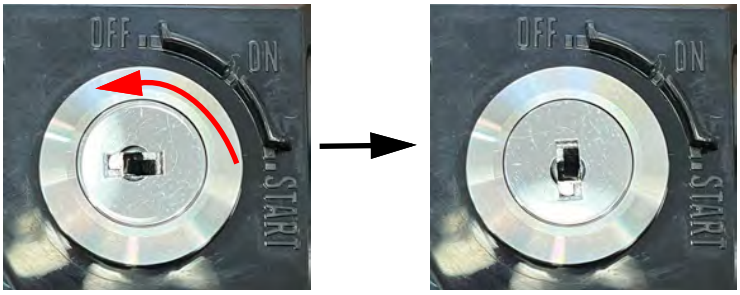


6 DECOMMISSIONING

Summary	Instructions used to explain how to shut down the Power Unit GPU 3400 +S as preparation for maintenance, transportation, or storage.

Follow the steps below in order to shut down the machine properly.

1. Hold the profile grinder firmly by the handlebar.
2. End the grinding process (see the operation manual for the corresponding profile grinder).
3. Turn the key anticlockwise to the "OFF" position to turn off the electronics and the motor. The LED display will be switched off automatically.



4. Remove the key from the key switch on the left-hand side of the control unit.
5. Remove the batteries (please refer to Chapter 5.4 "Removing the batteries" on page 31).
6. Remove the Power Unit GPU 3400 +S from the rail.

⚠ CAUTION	**CRUSH HAZARD.** **There is a crush hazard when removing the machine from the rail.** **Do not, under any circumstance, reach between the rail and the profile grinder.** **To remove the machine from the rail, use the handles intended for that purpose.**
⚠ CAUTION	**RISK OF INJURY.** **There is a risk of injury posed by the machine's weight.** **It Power Unit GPU 3400 +S weighs 14 kg without batteries. There is a risk of injury when the machine is being transported.** • **When fitted with rechargeable batteries, the profile grinder must be carried by two people** • **When carrying, make sure you maintain good balance and stand firmly,** • **only use the handles to carry it,** • **always wear safety footwear.**

7 DISMANTLING AND REMOVAL

Summary	Step-by-step instructions for correct dismantling and removal in preparation for transport or storage.

NOTICE **All inspection and installation work must only be carried out by trained specialist staff.**

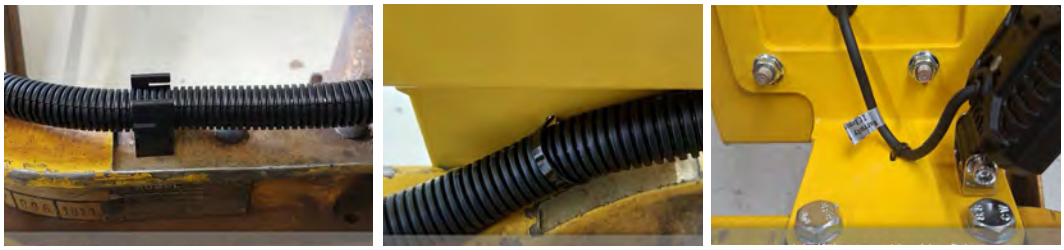
7.1 Removal from the Robel grinding machine 13.44/13.45

NOTICE **These dismantling and removal instructions relate to the removal of the Power Unit GPU 3400 +S from the grinding machine Robel 13.44/ 13.45.**

Fig. 7-1 attached Power Unit GPU 3400 +S to Robel 13.44/13.45

Follow the instructions below to ensure the removal is carried out correctly:

1. Remove the cable attachment from the profile grinder.



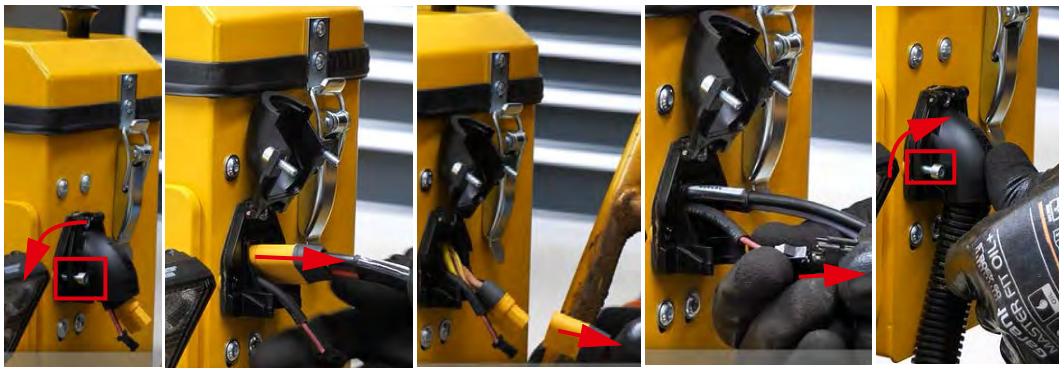
2. Loosen the cable connections.

   Loosen the M6 cylinder screws M 4 x 16 on the cable cover by turning them anti-clockwise with a 3 mm Allen key (2 screws per cable cover).

Open the cable cover and pull the cable connection slightly outwards.

Disconnect the cable connection and push the connector back.

Close the cable cover and tighten the cylinder screws M 4 x 16 by turning them clockwise with a 3 mm Allen key (2 screws per cable cover).



Loosen the M6 cylinder screws M 4 x 16 on the cable cover by turning them anti-clockwise with a 3 mm Allen key (2 screws per cable cover).

Open the cable cover and pull the cable connection slightly outwards.

Disconnect the cables and push the connector back..

Close the cable cover and tighten the cylinder screws M 4 x 16 by turning them clockwise with a 3 mm Allen key (2 screws per cable cover).

3. Remove the battery containers (2 screws per battery container).

   Loosen the hexagon screw M 10 x 20 by turning it anti-clockwise with a 17 mm open-ended spanner.

⚠ CAUTION	**CRUSH HAZARD.** **There is a risk of crushing your hands when removing the battery container from the profile grinder.** **Take care when removing it.**

   Remove the battery container from the profile grinder.

Repeat for the second battery container.

NOTICE	**To loosen the second screw, the lighting unit must be folded backwards..**

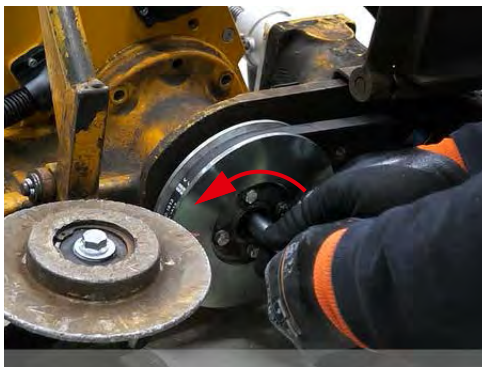
4. Loosen the drive unit (2 screws on each side).

   Loosen the M6 cylinder screw M 8 x 40 by turning it counter-clockwise with a 6 mm Allen key.

   Remove the drive unit.

5. Loosen the drive shaft.

   Loosen the inch screw (3/8“-24UNF x 2“) by turning it anti-clockwise with a 6 mm Allen key.

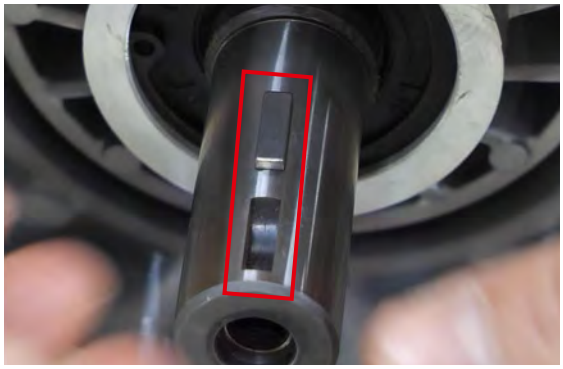


6. Pull the drive unit upwards and remove the drive unit of the profile grinder.

⚠ CAUTION

CRUSH HAZARD.
There is a risk of crushing your hands when removing the drive unit from the profile grinder.
Take care when removing it.

7. Remove the 2 keys from the hub of the shaft.



8 FAULT, CAUSE AND ELIMINATION

Summary	Identifying problems and fixing them.

WARNING

RISK OF INJURY.

There is a risk of injury posed by repairs that are not carried out correctly.

Repairs to the profile grinder must be carried out exclusively by Elektro-Thermit GmbH & Co. KG or specially trained personnel.

- **Work on electrical system components must be carried out exclusively by qualified electricians.**
- **Parts and components must be replaced exclusively with identical spare parts. When replacing a component, make absolutely sure to observe all the component manufacturer's instructions and specifications.**

NOTICE

All maintenance, servicing, and inspection work must be carried out exclusively by trained specialised personnel.

NOTICE

Wear the required personal protection equipment.

NOTICE

If necessary, contact the customer service team (please refer to Chapter 12 "Customer Service" on page 56) in order to get information for maintenance steps or repairs.

The following Table 8-1 on page 39 lists potential problems, their cause, and how to fix them.

SUB 8-1 Fault, cause and elimination

Fault	Cause	Elimination
One battery LED flashes red 	Charge level < 10%	1. Charge the battery with a compatible charger.
Five battery LEDs flash red 	The battery is almost empty and needs to be charged immediately.	

SUB 8-1 Fault, cause and elimination <continued>

Fault	Cause	Elimination
Five battery LEDs light up red (solid light) 	Battery overheating	1. Let the battery cool down.
It is not possible to switch on the profile grinder.	No batteries have been inserted	1. Check to make sure that you have inserted the batteries. 2. Insert the batteries (please refer to Chapter 5.1 "Inserting the batteries" on page 26). 3. Go through all the preparation steps (please refer to Chapter 4 "Commissioning" on page 22).
	Batteries not inserted correctly	1. Check to make sure that the battery or batteries have been inserted all the way. 2. Insert the battery or batteries properly. Align the battery ribs with the connector guide slots and slide the battery all the way into the battery holder. When the battery has been inserted properly all the way, you will hear it click into place. Repeat for the second battery. 3. Go through all the preparation steps (please refer to Chapter 4 "Commissioning" on page 22).
	The battery is flat	1. Charge the battery with a compatible charger (please refer to the operation manual provided by EGO).

8.1 Error codes on the LED display

Table 8-2 on page 41 below lists various error codes that the LED display can show, as well as their cause and how to fix them.

SUB 8-2 Error codes

Error code	Cause	Elimination
	Rotor stall protection	1. Shut down the machine (please refer to Chapter 6 "Decommissioning" on page 34). 2. Check for blockages close to the area where you are working. Remove any blockages. 3. Go through all the preparation steps (please refer to Chapter 4 "Commissioning" on page 22). If the error code is shown again, please contact the customer service team (please refer to Chapter 12 "Customer Service" on page 56).
	Low voltage	1. Shut down the machine (please refer to Chapter 6 "Decommissioning" on page 34). 2. Remove the battery (please refer to).Chapter 5.4 "Removing the batteries" on page 31 3. Charge the battery/batteries with a compatible charger (please refer to the operation manual provided by EGO). 4. Once the battery is fully charged, insert it once again (please refer to Chapter 5.1 "Inserting the batteries" on page 26).
	Overheated battery	1. Shut down the machine (please refer to Chapter 6 "Decommissioning" on page 34). 2. Let the battery cool down.
	Overheated drive unit	1. Shut down the machine (please refer to Chapter 6 "Decommissioning" on page 34). 2. Let the drive unit cool down. 3. Reduce the work load.

SUB 8-2 Error codes <continued>

Error code	Cause	Elimination
	Main board overcurrent protection	1. Reduce the work load.
	Communication fault	1. Contact the customer service team (please refer to Chapter 12 "Customer Service" on page 56).

9 MAINTENANCE AND CARE

Summary	Overview of maintenance and repair tasks and the materials required for them, as well as instructions on how to carry them out.

RISK OF INJURY.

There is a risk of injury

Operating and maintenance personnel must have the required qualifications and be able to carry out the respective tasks reliably.

- **The manager in question must define the corresponding personnel's responsibilities and supervision in detail.**
- **Everyone carrying out work on the machine must have received detailed briefing before that. This briefing must be documented in writing.**
- **The operations manager in question must make sure that all personnel has fully understood the contents of the operation and maintenance manuals.**

RISK OF INJURY.

Improper or delayed maintenance poses a risk of injury to the operator and leads to damage to the profile grinder.

- **Remove all batteries before carrying out any maintenance work.**
- **Maintenance intervals are to be determined by the operator as part of the risk assessment.**
- **Observe the manufacturer's maintenance intervals and instructions, as well as all applicable guidelines.**
- **Parts and components must be replaced exclusively with identical spare parts. When replacing a component, make absolutely sure to observe all the component manufacturer's instructions and specifications.**

RISK OF INJURY.

There is a risk of injury posed by repairs that are not carried out correctly.

Repairs to the profile grinder must be carried out exclusively by Elektro-Thermit GmbH & Co. KG or specially trained personnel.

- **Work on electrical system components must be carried out exclusively by qualified electricians.**
- **Parts and components must be replaced exclusively with identical spare parts. When replacing a component, make absolutely sure to observe all the component manufacturer's instructions and specifications.**

⚠ CAUTION	**RISK OF INJURY.** **Putting the machine back into operation intentionally and/or accidentally may result in injury.** **Remove the battery to make sure that the machine cannot be put back into operation intentionally or accidentally during maintenance and repair work.**
	**Environmentally hazardous substances must be properly disposed of in compliance with all applicable requirements and regulations.** **Make sure to observe the manufacturer's data sheets and safety data sheets.** **For more detailed information, please refer to Chapter 11 "Disposal" on page 54.**
NOTICE	**All maintenance, servicing, and inspection work must be carried out exclusively by trained specialised personnel (please refer to Chapter 1.3 "Requirements for operators" on page 1).**
NOTICE	**Wear the required personal protection equipment (please refer to Chapter 1.3.3 "Personal protection equipment" on page 3).**
NOTICE	**Damage, unusual noises, overheating, and/or vibrations are all things you should be on the lookout for.**
NOTICE	**Proper and timely maintenance will lengthen the machine's service life, ensure availability, and help prevent unwanted downtimes.** **The recommended maintenance intervals must be observed.**
NOTICE	**The components in the profile grinder are subject to various maintenance intervals that depend on how the machine is used.** **These maintenance intervals must be determined by the company operating the machine as part of the corresponding hazard and risk assessments. Observe the requirements in all applicable guidelines.**
NOTICE	**The operating company must document all maintenance.**
NOTICE	**Use genuine spare parts and suitable tools exclusively.**

9.1 Maintenance schedule

The maintenance schedule shows the interval at which maintenance tasks must be carried out while taking into account specific maintenance steps (please refer to Table 9-1 on page 45).

Tab. 9-1 Maintenance schedule

Interval / Maintenance task	before every entry into service	Daily / after the end of each shift	every 80 operating hours	every 100 operating hours	quarterly	as necessary
Visual inspection of the Power Unit GPU 3400 +S	*X*	*X*				*X*
Visual inspection and condition check Safety labels and rating plate				*X*		*X*
Cleaning the Power Unit GPU 3400 +S		*X*				*X*
Checking the screw connections to make sure they are secure			*X*			*X*
Cleaning the filter					*X*	*X*

9.2 Visual inspection of the Power Unit GPU 3400 +S

Ambient conditions
No special ambient conditions need to be observed.

Personnel
Specialised personnel

Tools and materials
-

Maintenance 9-1 Visual inspection

Maintenance steps	**Tools / materials**
1. Switch off the device	

Maintenance 9-1 Visual inspection <continued>

Maintenance steps		Tools / materials
1- 001	Shut down the machine (please refer to Chapter 6 "Decommissioning" on page 34).	
2.	**Visual inspection of general condition**	
2- 001	Carry out a visual inspection checking for damage, cracks, broken parts, and dents. Damaged components must not be put into operation and must be replaced. Contact the customer service team (please refer to Chapter 12 "Customer Service" on page 56).	
3.	**Switch on the device**	
3- 001	Go through all the preparation steps (please refer to Chapter 4 "Commissioning" on page 22).	

9.3 Visual inspection and condition check Safety labels and rating plate

Ambient conditions
No special ambient conditions need to be observed.

Personnel
Specialised personnel

Tools and materials
Rating plate Safety labels as needed

Maintenance 9-2 Visual inspection and condition check Safety labels and rating plate

Maintenance steps		Tools / materials
1.	**Switch off the device**	
1- 001	Shut down the machine (please refer to Chapter 6 "Decommissioning" on page 34).	
2.	**Visual inspection and condition check**	
2- 001	Check that all safety labels are present and legible.	

Maintenance 9-2 Visual inspection and condition check Safety labels and rating plate <continued>

Maintenance steps		Tools / materials
	Missing and illegible safety labels must be replaced. For more detailed information, please refer to Chapter 2.6.2 "Safety labels" on page 11.	Safety labels
2- 002	Check that the rating plate is present and legible. If the rating plate is missing or illegible, it must be replaced. For more detailed information, please refer to Chapter 2.4.1 "Rating plate" on page 8.	Rating plate
3.	**Switch on the device**	
3- 001	Go through all the preparation steps (please refer to Chapter 4 "Commissioning" on page 22).	

9.4 Cleaning the Power Unit GPU 3400 +S

WARNING	**RISK OF INJURY.** **There is a risk of metal swarf causing eye injuries when removing impurities with compressed air.** **Make sure to wear safety eyewear and protective clothing during cleaning work.**
NOTICE	**The Power Unit GPU 3400 +S must be cleaned at the end of each shift every time it is used.**
NOTICE	**Do not place the Power Unit GPU 3400 +S in water or hose it down.**

Ambient conditions
No special ambient conditions need to be observed.

Personnel
Specialised personnel

Tools and materials	Quantity
Cleaning cloth (lint-free)	1
Blow gun	1

Maintenance 9-3 Cleaning

Maintenance steps		Tools / materials
1.	**Switch off the device**	-
1- 001	Shut down the machine (please refer to Chapter 6 "Decommissioning" on page 34).	
2.	**Cleaning**	
2- 001	Remove grinding dust with a blow gun at a distance of 30 cm every time after you use the machine.	Blow gun
2- 002	Remove excess soiling with an appropriate cleaning cloth.	Cleansing tissue
	**Observe the following points when cleaning:** • **Do not, under any circumstance, let water get on or in the motor,** • **Do not, under any circumstance, use combustible and/or highly flammable cleaning agents.** • **Make sure that there are no paper residues and/or cleaning cloths left on the motor.** • **Do not point the blow gun into the fan from the outside, to avoid dirt from entering into the system**.	
3.	**Switch on the device**	
3- 001	Go through all the preparation steps (please refer to Chapter 4 "Commissioning" on page 22).	

9.5 Checking the screw connections to make sure they are secure

Ambient conditions
No special ambient conditions need to be observed.

Personnel
Specialised personnel

Tools and materials	Quantity
10 mm spanner (open-ended spanner/combination spanner)	1

Maintenance 9-4 Checking the screw connections to make sure they are secure

Maintenance steps		Tools / materials
1.	**Switch off the device**	
1- 001	Shut down the machine (please refer to Chapter 6 "Decommissioning" on page 34).	
2.	**Check the screw connections**	
2- 001	Check all screw connections to make sure they are in place and secure. Replace any missing bolt connections.	
3.	**Retighten the screw connections**	
3- 001	Tighten all screw connections until they are hand-tight.	
4.	**Switch on the device**	
4- 001	Go through all the preparation steps (please refer to Chapter 4 "Commissioning" on page 22).	

9.6 Cleaning the filter

Ambient conditions
No special ambient conditions need to be observed.

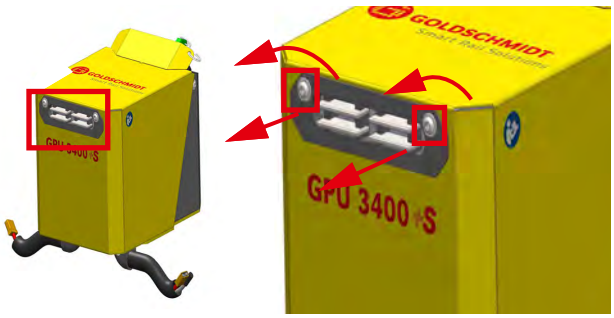
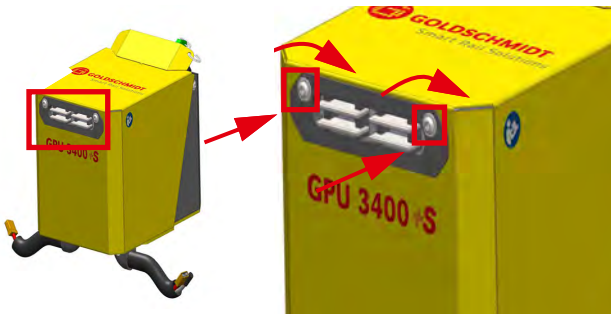
Personnel
Maintenance staff

Tools and materials	Quantity
5 mm Allan key	1
Blow gun	1

Maintenance 9-5 Cleaning the filter

Maintenance steps		Tools / materials
1.	**Switch off the device**	
1- 001	Shut down the machine (please refer to Chapter 6 "Decommissioning" on page 34).	
2.	**Removing the air filter insert**	

Maintenance 9-5 Cleaning the filter <continued>

Maintenance steps		Tools / materials
2- 001	Loosen the two 5 mm hex socket screws on the air filter insert by turning them anti-clockwise with a 5 mm hex socket spanner. 	5 mm Allan key
2- 002	Lift out the air filter insert.	
3.	**Cleaning the filter**	
3- 001	Clean the filter with a blow gun. A damaged air filter insert must be replaced (see Chapter 12 "Customer Service" on page 56).	Blow gun
NOTICE	**Do not blow directly into the air filter element with the compressed-air gun, as the dirt particles may enter the machine and damage the motor.**	
4.	**Fitting the air filter insert**	
4- 001	Insert the air filter element.	5 mm Allan key
4- 002	Tighten the two 5 mm hex socket screws on the air filter insert by turning them clockwise with a 5 mm hex socket spanner. 	
5.	**Switch on the device**	
5- 001	Go through all the preparation steps (please refer to Chapter 4 "Commissioning" on page 22).	

10 TRANSPORTATION AND STORAGE

Summary	Provides information and uses instructions to explain the steps required for transportation, storage, and putting the machine back into operation.

10.1 Transportation of the Power Units GPU 3400 +S

NOTICE	**The transportation packaging of the batteries must be labelled in accordance with all applicable hazardous material regulations!**
NOTICE	**When transporting the machine, make sure to comply with all safety and accident prevention regulations.**

Follow the steps below to transport the Power Unit GPU 3400 +S correctly:

1. Shut down the machine.

   For more detailed information, please refer to Chapter 6 "Decommissioning" on page 34.

2. Remove the Power Unit GPU 3400 +S from the profile grinder.

   For more detailed information, please refer to Chapter 7 "Dismantling and removal" on page 35

3. Transport the Power Unit GPU 3400 +S to the place where it will be stored.

NOTICE	**Use suitable devices to secure the machine during transportation!** **Use lashing straps to secure the Power Unit GPU 3400 +S in such a way that it will remain upright and cannot fall over and/ or be damaged.**

10.2 Storage of the Power Units GPU 3400 +S

NOTICE	**Outdoor storage is not permitted.**

The following storage conditions need to be adhered to in order to properly store the machine (please refer to Table 10-1):

Storage 10-1 Storage conditions

Conditions	
Ambient conditions	- not placed directly next to heaters or other heat sources; - dust-free and - ozone-free environment (no fluorescent light sources, mercury vapour lamps, photocopiers etc.)
Bearing temperature	0 °C to 40 °C (32 °F to 104 °F)
Relative humidity	40 % to 60 %

Follow the steps below to store the Power Unit GPU 3400 +S correctly:

1. Shut down the machine.

   For more detailed information, please refer to Chapter 6 "Decommissioning" on page 34.

2. Transport the Power Unit GPU 3400 +S to the place where it will be stored(see Chapter 11 "Disposal" on page 54=.

3. Remove the batteries.

   For more detailed information, please refer to Chapter 5.4 "Removing the batteries" on page 31.

4. Clean the Power Unit GPU 3400 +S.

   For more detailed information, please refer to Chapter 9.4 "Cleaning the Power Unit GPU 3400 +S" on page 47

5. Fix up any paint damage.

6. Apply a thin coating of oil to any areas that could rust.

7. Properly store the Power Unit GPU 3400 +S at the corresponding storage location.

NOTICE	**Store the Power Unit GPU 3400 +S on pallets or shelves (not directly on the floor or against walls) in order to prevent the ingress of moisture.**
NOTICE	**Store the Power Unit GPU 3400 +S upright.**
NOTICE	**If necessary, use a protective cover/dust cover to protect internal parts from soiling and other impurities.**

10.3 Putting the Power Unit GPU 3400 +S back into operation

Follow the steps below in order to put the machine back into operation:

1. Remove the Power Unit GPU 3400 +S from its storage location.

2. If you used a protective cover or dust cover, remove it.

3. Transport the Power Unit GPU 3400 +S to the place where it will be used.

   For more detailed information, please refer to Chapter 10.1 "Transportation of the Power Units GPU 3400 +S" on page 51.

4. Mount the Power Unit GPU 3400 +S on the corresponding profile grinder (see Chapter 3 "Assembly and installation" on page 16).

5. Insert the batteries.

   For more detailed information, please refer to Chapter 5.1 "Inserting the batteries" on page 26.

6. Go through all the preparation steps.

   For more detailed information, please refer to Chapter 4 "Commissioning" on page 22.

11 DISPOSAL

Summary	How to properly dispose of the Power Unit GPU 3400 +S and its components and/or accessories.

Chargers and batteries must not be disposed of in domestic waste! In accordance with directive 2012/19/EU, electrical and electronic devices that are no longer in use must be collected separately and disposed of in a manner compliant with environmental legislation.
The disposal of batteries is governed by the Battery Regulation (EU) 2023/1542.
Dispose of contaminated cleaning utensils properly.

NOTICE

At the end of its service life, the Power Unit GPU 3400 +S must be separated from unsorted municipal waste and properly disposed of in compliance with all applicable national and international legislation and regulations.

NOTICE

The machine must be disposed of exclusively by trained specialised personnel or by specialised companies that have been tasked with this disposal.

Next steps

1. Shut down the machine (please refer to Chapter 6 "Decommissioning" on page 34).
2. Remove the Power Unit GPU 3400 +S (see Chapter 7 "Dismantling and removal" on page 35
3. Remove the batteries (EGO Power+ 56V ARC lithium™) from the Power Unit GPU 3400 +S (please refer to Chapter 5.4 "Removing the batteries" on page 31).

   NOTICE

   Follow EGO's disposal instructions (please refer to Chapter 1.4 "Further applicable documents" on page 4).

4. Dispose of the Power Unit GPU 3400 +S at an authorised recycling facility, or contact customer services (see Chapter 12 "Customer Service" on page 56).

11.1 Waste code numbers (WCN)

The information in this chapter is intended to ensure that the Power Units GPU 3400 +S will be disposed of in an environmentally friendly manner. For this purpose, the structure was analysed and the waste generated during disposal was, as far as possible, assigned to the waste types identified in the European Waste List with a six-digit waste code number.

The waste code numbers marked (*) are hazardous within the meaning of Section 41 of the Circular Economy Act. This also applies to waste collected by public waste disposal authorities pursuant to Section 15 of the Circular Economy Act.

The waste designations corresponding to the waste code numbers are listed in Table 11-1.

Tab. 11-1 Waste code numbers (WCN)

Waste code numbers (WCN)	Waste designation
02 01 10	Scrap metal
08 01 11*	Paint and varnish waste containing organic solvents or other hazardous substances.
08 01 21*	Paint or varnish remover waste
16 02	Waste from electrical and electronic devices
16 06	Batteries and accumulators
17 02 03	Plastic
17 04 01	Copper, bronze, brass
17 04 02	Aluminium
17 04 05	Iron and steel
17 04 11	Cables except those falling under 17 04 10* (cables containing oil, coal tar or other dangerous substances).

12 CUSTOMER SERVICE

Summary	Contact information for the manufacturer in the event that you need to get in touch in order to buy spare parts, return an old device, or get a problem fixed.

12.1 Contact details

You can find the contact information in Table 12-1 below:

Tab. 12-1 Contact details

Address	ELEKTRO-THERMIT GMBH & CO.KG A GOLDSCHMIDT COMPANY Chemiestraße 24 06132 Halle (Saale)
Phone	+49 345 7795-600
Fax	+49 345 7795-770
E-mail	et@goldschmidt.com
Internet	www.goldschmidt.com

ANNEX A - TECHNICAL DATA

NOTICE **For more technical data about supplier components, refer to Chapter 1.4 "Further applicable documents" on page 4.**

Tab. A-1 General data

General data	
Manufacturer	ELEKTRO-THERMIT GMBH & CO.KG A GOLDSCHMIDT COMPANY Chemiestraße 24 06132 Halle (Saale)
Device information	
Designation	Retrofit kit (Power Unit GPU 3400 +S)
Serial number	from GPU3400+S-0001
Year of manufacture	from 2024

Tab. A-2 Technical data

Technical data	
Measures and weights	
Length	282 mm / 11.1 in
Height	205 mm / 8 in
Width	204 mm / 8 in
Weight (without battery)	14 kg / 31 lb
Drive	
Quantity	2
Type of battery	EGO Power+ 56V ARC lithium™
Battery potential	56 V
Battery capacity	12 Ah
Motor rating	3.5 kW / 4.7 hp
Motor speed	3400 rpm
Temperature ranges/Operating conditions	
Ambient temperature when operating the machine	-20 °C to +40 °C (-4 °F to +104 °F)
Ambient temperature when charging the batteries	+5 °C to +40 °C (+41 °F to +104 °F)

Tab. A-2 **Technical data** <continued>

Technical data	
Ambient temperature while in storage	0 °C to 40 °C (32 °F to 104 °F)

ANNEX B - OVERVIEW DRAWINGS

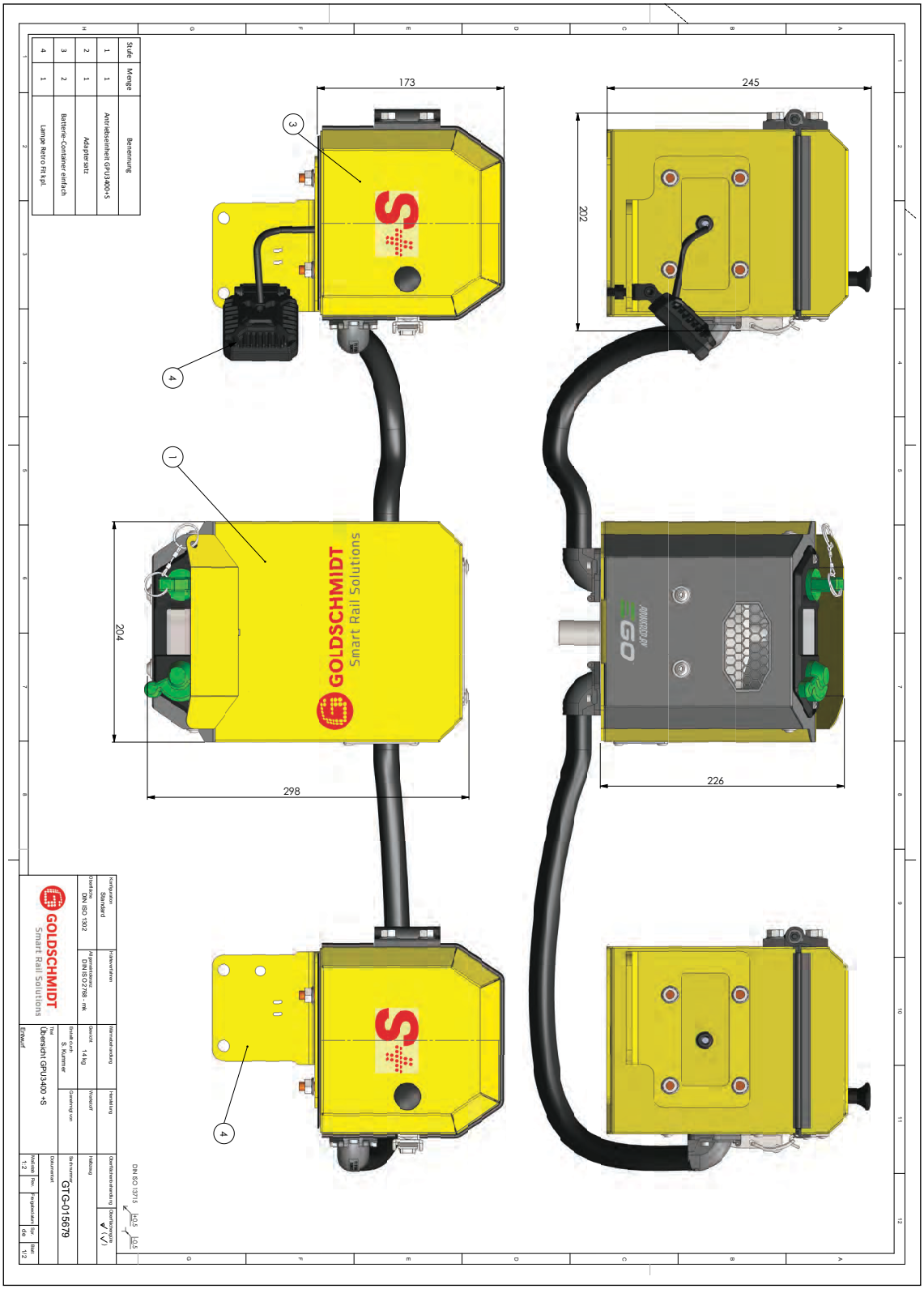


Fig. A-1 Overview drawings

ANNEX C - DECLARATION OF CONFORMITY

EC Declaration of Conformity

as defined in the 2014/35/EU Low Voltage Directive, Annex IV

The manufacturer:

ELEKTRO-THERMIT GMBH & CO. KG
Chemiestraße 24
06132 Halle (Saale)

hereby declares that the following product

Trade name:	Battery drive system
Product name:	GPU3400+S
Serial number:	GPU3400+S-XXXX (XXX consecutive number)
Year:	2024

complies with all relevant provisions of the Low Voltage Directive 2006/42/EC.

Applied harmonised standards
EN 50121-3-2: 2016 Railway applications - Electromagnetic compatibility - Part 3-2: Railway vehicles / equipment

Mr Sven Kummer, Am Schenkberg 20, 04349 Leipzig is authorised to submit the technical documents.

Halle (Saale), 2nd January 2025

Dr. Axel Hoeschen
Managing Director

ANNEX D - LIST OF SPARE PARTS

When ordering spare parts, you will need to provide your Power Units GPU 3400 +S's model and serial number. You can find this information on the rating plate (please refer to Chapter 2.4.1 "Rating plate" on page 8).

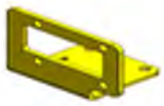
Tab. D-1 List of spare parts (Grinding machine Robel 13.44/13.55)

Ref. No.	Spare part		Drawing number	Item number	Quantity
1		Drive unit Geismar MP6	GTG-015715	258326	1
2		PU 2710 control panel	GTG-014912		1
3		Air filter system GPU3400	GTG-016078		1
4		Battery container, simple	GTG-014590		1
5		Battery container cover, complete	GTG-014624		1
6		Retrofit lamp, complete	GTG-015694		1
7		Inch SK 5/16" - 24UNF x 5/8"	GTG-015112	364025	1

Tab. D-1 List of spare parts (Grinding machine Robel 13.44/13.55) <continued>

Ref. No.	Spare part		Drawing number	Item number	Quantity
8		Tension clamp	GTG-014033	363851	1
9		Key switch	GTG-016030		1
10		Hose holder	GTG-013464	363847	1
11		ZY M6 x 16 VZ 8.8 DIN 4762	GTG-015474	441007	1
12		Drive shaft Robel 13.45	GTG-016070		1
13		Pulley Robel complete	GTG-016062		1
14		V-belt Robel XPA 760	GTG-016064		1
15		Ball bearing DIN 625 6008 2Z	GTG-016100		2
16		Spacer bushing Robel drive shaft	GTG-016098		1

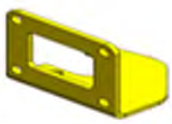
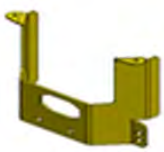
Tab. D-1 List of spare parts (Grinding machine Robel 13.44/13.55) <continued>

Ref. No.	Spare part		Drawing number	Item number	Quantity
17		PS DIN 988 40x50x2.5	GTG-016102		1
18		SRW DIN 471 A40	GTG-016104		1
19		Bracket, container, Robel 13.44, right	GTG-015102	258281	1
20		Bracket, battery container, Robel 13.44 left	GTG-015107	258280	1
21		Bracket, container, Robel 13.45 left	GTG-016137		1
22		Bracket, container, Robel 13.45 right	GTG-016140		1

Tab. D-2 Spare parts list (grinding machine Geismar MP6)

Ref. No.	Spare part		Drawing number	Item number	Quantity
1		Drive unit Geismar MP6	GTG-015715	258326	1
2		PU 2710 control panel	GTG-014912		1

Tab. D-2 Spare parts list (grinding machine Geismar MP6) <continued>

Ref. No.	Spare part		Drawing number	Item number	Quantity
3		Air filter system GPU3400	GTG-016078		1
4		Battery container, simple	GTG-014590		1
5		Centrifugal clutch	GTG-015367	258285	1
6		Spacer sleeve for centrifugal clutch	GTG-015368	258284	1
7		Inch SK 5/16" - 24UNF x 5/8"	GTG-015112	364025	1
8		Bracket, container, MP6, left	GTG-014944	258276	1
9		Bracket, container, MP6, right	GTG-014946	258275	1
10		Mudguard MP6	GTG-014688	258373	1
11		Battery container cover, complete	GTG-014624		1

Tab. D-2 Spare parts list (grinding machine Geismar MP6) <continued>

Ref. No.	Spare part		Drawing number	Item number	Quantity
12		Traverse Geismar MP6 Neo/Electro FT.	GTG-015924	258365	1
13		Retrofit lamp, complete	GTG-015694		1
14		Adapter shaft MP6 (4-stroke)	GTG-014695	258310	1
16		Bracket, container, MP6 NEO left	GTG-015922	258364	1
16		Key switch	GTG-016030		1
17		Hose holder	GTG-013464	363847	1
18		ZY M6 x 16 VZ 8.8 DIN 4762	GTG-015474	441007	1
19		Tension clamp	GTG-014033	363851	1

Tab. D-3 List of accessories

Item number	Accessory	Quantity
upon request	EGO Power+ 56V ARC lithium™ (12 Ah)	2

LIST OF FIGURES

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