HTG-800 SP Ultra



CE

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This operating manual was created by HTG Europe GmbH. It was prepared to the best of our knowledge, and any changes to the original version are listed here.

If you notice any errors or ambiguities, please let us know. We also welcome any comments or suggestions.

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Keep this operating manual handy near the machine. It must be included with the machine if it is sold.

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2 Notes on Reading

2.1 Intended Users of the Operating Instructions

Chapter	Operator	Qualified personnel	Operators	Support staff
Safety	x	x	x	x
Product Description		x	x	
Shipping		x		
Assembly		x		
Commissioning		x		
Operation and Use	x	x	x	x
Troubleshooting		x	x	
Maintenance	x	x		
Decommissioning		x		

→ For more information, please contact your local dealer.

2.2 Abbreviations, Synonyms, Symbols

Abbreviation/ Synonym	Meaning
PPE	Personal protective equipment
Machine	HIGH TECH GRINDING 800 SP Ultra Floor Grinder
Symbol	**Meaning**
→	Instruction to take action or to read a section in this document
•	List, main points
○	Bulleted list, subpoints
	Invitation to read additional documents
Italics	Name of a document, a key, a button, a switch
	This text provides additional information that is .

2.3 Safety-related information

2.3.1 Overview

The safety-related information explains the hazards associated with the machine and how you can avoid them.

You will find this information primarily:

- As safety instructions and pictograms in the Safety chapter
- As warnings of imminent hazards
- As pictograms and warning text in the section "Labels on the machine and packaging"

2.3.2 Safety Chapter

This chapter contains general safety information to help you avoid hazards associated with the machine. The information is intended to promote safe behavior. The goal is to provide a basis for training and instruction.

Compliance with the safety instructions protects personnel, living beings, and the environment from harm. This chapter uses the following safety symbols:

Safety symbol	Meaning
	Warning of dangerous electrical voltage

2.3.3 Warning

Meaning

This operating manual contains warning notices in several chapters. A warning notice alerts you to an imminent danger. It must be understood in the context of the situation in which the warning notice is given. The goal is to prevent accidents and damage during a specific procedure.

Signal words

Signal word	Risk level of the Hazard	Meaning
⚠ **DANGER**	High	Death or serious bodily injury may if the hazard is not avoided.
⚠ **WARNING**	Indicates	Death or serious injury may occur if the hazard is not avoided.

⚠ **CAUTION**	Low	Minor or moderate injury may occur if the hazard is not avoided.
CAUTION	-	Damage with significant financial consequences to the product or other property is possible.

Presentation

Warnings are presented in the operating instructions as follows:

Variant 1:

➢ **DANGER** This warning text identifies the source of the hazard and the scope of its applicability. This warning text describes the consequences.

→ This instruction specifies the corrective action to prevent the hazard.

The warning:

- appears in the running text or at the beginning of a step-by-step instruction.
- applies to the following text passage or the entire step-by-step instruction

Variant 2:

1. Step 1
   DANGER This warning text identifies the source of the hazard and the scope of its impact. This warning text describes the consequences.
2. Step 2: This instruction specifies the corrective action to prevent
3. Step 3

The warning:

- precedes an action involving an imminent danger.
- applies to this action.

2.4 External documents

In addition to this operating manual, documentation from third-party suppliers must be observed.

The third-party documents contain safety-related information. This information is not repeated in this original operating manual.
If hazards to the machine as a whole have been identified in the third-party documents, these have been taken into account in the risk assessment.

3 Safety

3.1 Intended Use

The machine was placed on the market by HTG Europe GmbH. The machine is intended for use in workshops and similar businesses.

The machine is intended exclusively for:

- dry or wet grinding,
- polishing, and
- processing

mineral floor surfaces. Mineral floor surfaces include concrete, screeds, natural stone, terrazzo, and similar materials.

The machine is used for:

- surface preparation,
- smoothing, or
- polishing

Used in industrial, commercial, and construction applications. The machine may only be operated:

- With suitable tools and genuine HTG accessories,
- In technically sound condition.

The machine is used:

- inside buildings
- in dry outdoor areas—when used outdoors, ensure that the machine is protected from moisture, wetness, and direct exposure to the elements.

The machine is built in accordance with the state of the art and recognized safety regulations.

However, improper or unintended use of the machine may result in danger to the life and limb of the user or third parties, or damage to the machine and other property.

Intended use includes observing these operating instructions as well as the operating instructions of the suppliers and complying with the suppliers' inspection and maintenance requirements.

The manufacturer is not liable for non-compliance or any resulting damage. The operator bears the risk.

If malfunctions occur during operation:

➢ Shut down the machine immediately.

➢ Notify qualified personnel or the dealer.

Reasonably foreseeable misuse

The situations listed in this section are prohibited.
Any use other than that described in this operating manual is considered foreseeable misuse. This includes:

- Provision and use in the consumer sector.
- Storing and parking the machine under conditions that allow unauthorized persons and persons under the age of 18 to access and use the machine.
- Use:
  - in rain, lightning, dense fog, strong winds, or other adverse conditions.
  - If electronic components have become wet.
  - Near explosive or flammable materials, or steam, dust, solvents, thinners, or other flammable substances.
- Continuous operation for more than 5 hours at a time.

  The actual operating time depends on the operating conditions and may be shorter. In the event of:
  - Signs of overload,
  - Error messages

  ➢ Switch off immediately and allow to cool down.
- operation without guards,
- mechanically or electrically bypassing the machine or machine parts,
- the use of parts other than original parts or parts that do not meet the specifications of the replaced part,
- modifications, alterations, and tampering,
- use for processing materials other than those intended. This includes:
  - PVC,
  - linoleum,
  - vinyl,
  - rubber,
  - carpet,
  - rubber,
  - cork,
  - Tiles,
  - Metal floors,
  - Loose, damaged, or hollow floors.
- Failure to follow the instructions and prescribed operating, maintenance, and

maintenance conditions,

- failure to comply with the regulations and provisions in the country of use and with the legal provisions and accident prevention regulations regarding the handling of the machine,
- Operating the machine outside the technical specifications.

3.2 Legal Provisions

3.2.1 Modifications

Modifications to the machine may create new hazards. Serious personal injury is possible.

- ➢ Do not make any modifications to the machine.
- ➢ Do not put machines that have been tampered with by third parties into operation.

Only original spare parts or spare parts that meet the specifications of the original spare parts may be used during maintenance work. The use of other parts may result in the manufacturer's liability being voided. Liability then passes to the converter or operator.

3.2.2 Applicable Directives

- See EC Declaration of Conformity.

3.2.3 Sale outside the European Economic Area

The manufacturer assumes no liability if the machine is sold outside the European Economic Area. The machine is designed, built, and documented exclusively for the European Economic Area.

If the machine is resold outside the European Economic Area, the seller is responsible for complying with all legal requirements of the respective economic area or country.

3.3 Safety Instructions

The safety instructions are sorted by their scope of application.

3.3.1 By source of hazard

Apply to the entire machine throughout its entire service life

Energy



Electrical energy

The machine is connected to a 380 V supply voltage. Touching live parts will result in a fatal electric shock.

- ➢ Have repairs performed only by qualified personnel.

- Before working on the machine, unplug the power cord and secure it so it cannot be plugged back in.
- Check the power cord and plug for damage before connecting.
- Replace any damaged cables immediately.
- Lock the control box after finishing work and remove the key.

Substances, Materials

Dust

Respirable dust is generated during grinding. Respiratory diseases are possible.

- Wear respiratory protection:
  - Respirator with an FFP2 filter.
  - For dust containing quartz or cement, use FFP3.
- Regularly check the operator's health.

Noise

Entire machine

The machine operates at a harmful noise level during grinding. Severe hearing damage is possible.

- Hearing protection must be worn.

Fire, Blaze, Explosion

Overheating

The control box is equipped with a ventilation grille. The ventilation is designed to prevent overheating inside the control box. If ventilation grilles are blocked or dirty, heat will build up inside the control box. Cable insulation may melt. Fires may occur.

Smoke inhalation and burns are possible.

- Keep ventilation grilles open and clean.
- Replace defective ventilation devices immediately.

Aging, Wear

Unnoticed wear

The machine is subject to aging. The components were designed to withstand the expected loads. Nevertheless, they age and wear out. Components may fail sooner than expected. If aging, wear, and defective parts go unnoticed, serious injuries can result.

- Follow the maintenance schedule.
- Perform regular visual inspections.

Labeling of control and display elements

The control and display elements are labeled. This prevents incorrect operation. Warning labels and pictograms are affixed to the machine. Missing labels and pictograms can lead to personal injury and damage to the machine.

- Keep control and adjustment elements, as well as labels and pictograms, clean.
- Replace damaged labels and pictograms.

Structural engineering

Slopes

Stability and safe movement may be limited on slopes. Safety is no longer guaranteed on steep slopes. The machine may tip over or slide.

See also the chapter on Sloped Surfaces

3.3.2 By life phase

The following apply to the entire machine during specific life phases

Transport

Lifting and securing the machine

The handle, frame, and other machine parts are designed to withstand the forces encountered during the work process. They cannot withstand the forces generated when lifting the machine. Machine:

- Do not lift by the handle, frame, or other machine parts.
- Lift at the lifting points.
- Use a crane or forklift to place the machine on a pallet or skid frame and secure it to prevent it from falling.

The tool holders and other machine parts are very sensitive to mechanical damage. Tool holders can be completely destroyed.

- Do not drive the forklift under the tool holders.

PPE

For transport, the machine must be attached to lifting equipment. During these operations, hands may be crushed or scraped. Suspended loads may swing. Carelessness may result in the head being struck. Loads may fall or be set down inaccurately. Serious injuries to the feet and toes are possible.

- Wear a safety helmet.
- Wear safety gloves.
- Wear safety shoes.
- Never stand under suspended loads.

Lifting equipment and transport vehicles

Lifting equipment that is undersized or the use of unsuitable attachment points can cause loads to tip over or the lifting equipment to break.

- Use lifting equipment of sufficient capacity.
- Secure lifting equipment to the attachment points and lift.

Transport operations may only be performed by qualified personnel in accordance with safety instructions

- Follow the regulations for securing loads during transport.
- Provide an escort for safety purposes during transport on open factory grounds.

Load-bearing equipment and slings must comply with accident prevention regulations.

- Use only tested and approved lifting equipment:
  - Shackles in accordance with DIN 82101
  - Lifting chains in accordance with DIN EN 818-2, Grade 8
  - Lifting slings in accordance with DIN EN 13414-1
  - Textile slings (round slings) in accordance with DIN EN 1492

Loading transport vehicles

Undersized transport vehicles can be overloaded by the load. Machine parts may protrude beyond the outer dimensions of the transport vehicle. Operational and roadworthiness may be compromised. These issues may not be immediately apparent and may only arise during transport. Loads may shift due to vehicle movement.

- Select a transport vehicle of sufficient size based on the weight and dimensions.
- Secure loads on the transport vehicle using suitable means.
- Protect the machine from moisture.

Assembly, Disassembly

Store tools and components

Tools can be stored outside of tool storage units. Components are ready for installation. People may trip and fall.

- Provide sufficient assembly and storage space.
- Do not store tools and components in walkways or in areas with limited visibility.
- Clean up tools after finishing work.

Commissioning

Before initial startup

- Always use the machine in accordance with the accompanying operating instructions.

- Carefully read the operating instructions, including the safety-related information, before first use.
  This knowledge will help you recognize dangerous situations and protect yourself and others.
- Do not start up the machine until you have read and understood the contents of the operating instructions.
- Train qualified personnel.
- Use qualified specialists.
- Work only with a machine that has not been tampered with and is undamaged.
- Observe local laws and regulations when using the machine.
- Ensure that the operator has taken safety precautions and that hazards can be avoided during operation.

Operation, Use

People in the danger zone

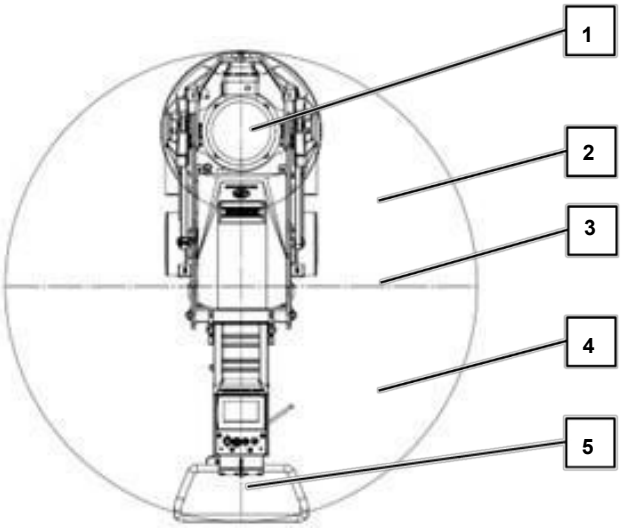


Fig. 1

Fig. 1 Hazard zones

Pos.	Designation	Item	Description
1	Machine with tools	2	Hazard zone for third parties
3	Boundary between the danger zones	4	Hazard zone for the operator
5	Handle	-	-

Before turning on the machine, ensure that third parties are kept out of the danger zones.

Operator:

- Move carefully within the danger zone for the operator.

Operation of the machine may pose hazards to bystanders, e.g., due to noise, dust, and the machine's guided movements.

- Keep people at least 2 meters away from the danger zone.
- Observe the "one machine, one person" principle.

Operator presence

Due to the rotational movements of the tools, the machine may perform unintended movements if left unattended.

- Hold the machine by the handle during operation.

Running over the power cord

The power cord runs along the floor. Running over it can damage the power cord. Electric shock is possible.

- When moving forward, guide the power cord behind the machine and to the side of the operator.
- Guide the power cord by hand when moving backward. Place the power cord outside the machine's working area.

If the power cord is run over:

- switch off the machine immediately.
- Check the connection cable for damage and replace it immediately if damaged

Maintenance

Replace components

The machine's components are designed to work together in terms of their parameters and construction. Replacing them with unsuitable components can lead to malfunctions and pose a risk to people working on the machine.

- Use only original replacement parts or replacement parts that meet the specifications of the original replacement part.

Storage

Unauthorized Access

The machine is intended for users with specialized knowledge and who have received training. See chapter User Groups

➢ Store the machine so that unauthorized user groups do not have access, e.g., locked in a room.

Disposal

Prevent environmental damage

The machine contains components or substances that pose a risk to the environment if disposed of improperly.

➢ To prevent environmental damage, follow these steps. Materials and components:

- Sort
-  Do not throw parts in the trash,
- dispose of them in accordance with legal regulations,
- have them picked up and recycled by a specialized company. Follow the safety data sheets.

3.3.3 Depending on the location of the hazard

The following apply to specific machine parts throughout their entire lifecycle

Safety devices

Regular inspection
The protective devices are designed so that, when used as intended, the risk of injury is reduced to a residual risk. If protective devices are not functional, serious injuries may result.

➢ Do not tamper with or modify safety devices.

➢ Always operate the machine with functional safety devices.

➢ Remove safety devices only when the main switch is turned off and secured against being turned back on.

➢ After repair work, reinstall the protective devices and check their function.

Frequency converter

Speed
The speed affects the grinding result. Different speeds may be appropriate for different tools and can be set manually. The parameter settings on the frequency converter are accessible only with a password.

➢ Only allow people with password access to change parameters on the frequency converter.

➢ Do not disclose the password to unauthorized persons.

Entire machine

PPE

Risk of injury from loose clothing, ribbons, jewelry, and loose hair.

- ➢ Wear close-fitting work clothes.
- ➢ Tie back long hair and tuck it under a head covering.
- ➢ Remove jewelry.

Vibrations and Noise

The machine has been designed to the best of current technology to minimize vibration intensity and noise levels as much as possible. In the event of abnormal:

- strong vibrations,
- loud noises

➢ , immediately take the machine out of service and secure it against further use.

➢ Notify the authorized dealer.
The machine may only be inspected and repaired by maintenance personnel authorized by the dealer.

3.4 Operator

The operator:
...fulfills labor law obligations regarding the operation of the machine.
• operates the machine safely and without tampering throughout its entire service life, • ensures that personnel read and understand the operating instructions, • instructs the staff before they begin work, • provides the operating instructions in paper form at the machine, • keeps the operating instructions and third-party documents in legible condition. • Provides fire extinguishers and first-aid kits
...handles personnel management tasks
• Assigns individuals to a user group, • defines access permissions for the machine, the control panel, the control system, and the program, • trains the user groups.
...instructs users on how to respond in the event of accidents and operational malfunctions. The content of the instruction includes, for example:
• the locations of first-aid stations, • the location and layout of escape routes, • how to respond in emergencies and regular drills to practice these responses. ➢ Seek professional medical treatment immediately after administering first aid.

3.5 Personnel

3.5.1 Description of user groups

Qualified personnel
...are specialists who, due to their vocational training, professional experience, and recent relevant professional practice or personal characteristics, are capable of performing specialized work on the machine. They are assigned and instructed.
• has successfully completed a recognized vocational training program, has knowledge and experience in operating machinery, • can assess the work task and perform it independently, • has knowledge of the applicable standards or the ability to acquire such knowledge, • is aware of the hazards present in their field of expertise and knows how to prevent and eliminate them.
...will be instructed by the respective dealer prior to commissioning. The following qualified personnel are required for the operation of the machine:
• for work on the electrical equipment for setup and testing • for maintenance and repair for troubleshooting • for transport, assembly, and disassembly work
Operators
...are people who work with the machine in a grinding operation.
• can read, • understand the symbols and instructions affixed to the machine, and, after receiving instruction and training, can perform the tasks independently and in accordance with the guidelines, • recognize hazards after receiving instruction and can respond in accordance with the guidelines.
Support staff
...are persons who perform tasks in the vicinity of the machine that are not related to its operation. This includes, for example, cleaning. Support staff are not permitted to operate the machine.
• can understand instructions, • can implement instructions while performing their tasks, • recognize hazards after receiving instruction and can respond in accordance with the guidelines.
Trainees
...are individuals currently undergoing specialized training. They are permitted to operate the machine under the supervision of qualified personnel or to perform tasks within their area of expertise .

• can understand instructions, • can follow instructions while working, • recognize hazards after receiving instruction and can respond in accordance with the guidelines.
Contractor personnel
...are external employees who, under the following circumstances, possess the qualifications of the preceding employee groups:
• Before work begins, training and safety briefings must be conducted by qualified personnel and documented in writing. • The work of third-party personnel must be coordinated with internal employees to prevent mutual hazards. • Before work begins, a designated contact person—an internal employee—must be identified who is familiar with the work procedures and work locations.

3.5.2 Access Restrictions

User groups

User groups may only be granted access to the machine in accordance with their qualifications.

Age

Users of the machine must be of legal age. Trainees under the age of 18 may only operate the machine in the presence of an instructor for training purposes.

Health

The machine must not be operated by persons who are under the influence of substances that impair reaction times, are tired, or are unable to operate it for health reasons.

Users must be able to recognize visual hazard signals.

➢ Remove unauthorized persons from the machine.

3.5.3 Personal Protective Equipment (PPE)

The user's personal protective equipment includes:

PPE	When?	Pictogram
Safety helmet	• For all activities	
Respiratory protection	• During operation: o Respirator with FFP2 filter o for dust containing quartz or cement FFP3	
Certified safety goggles	• During the grinding process	
Hearing protection	• During operation: • e.g., ear muffs with an SNR of 25 dB	
Certified rubber protective gloves	• During the grinding process	
Certified insulated safety shoes	• All activities	
Protective clothing	• All activities	

3.6 Safety concept

3.6.1 Labels on the machine and packaging

Safety-related information in the form of pictograms and/or labels is affixed to the machine and the packaging. They indicate risks that:

- occur frequently and/or
- have serious consequences.

The following labels are affixed to the machine:

Meaning	Location	Marking
Warning: Dangerous electrical voltage	Electrical Panel	
Warning: Risk of hand injury	On the additional weight	

Meaning	Location	Label
Read the operating instructions before using the machine	On the rack	
Wear a safety helmet	On the rack	
Wear hearing protection	On the rack	
Wear safety goggles	On the rack	

Wear vibration-damping safety gloves	On the rack	
Wear insulated safety shoes	On the rack	
Markings for attaching the machine to suitable lifting equipment for transport.	Lifting points	
Note: Voltage: 380V 3P	Cover on the control box	
Warning: Water leakage	On the rack	

3.6.2 Emergency stop and emergency shutdown devices, main switch

Location	Location	Function
Main switch with emergency stop function	On the control panel	Immediately cuts off the power supply. ➢ Be aware of residual energy in the frequency converter
Emergency stop button	On the panel above the control box	Immediately stops dangerous movements. Immediately cuts off the power supply. ➢ Be aware of residual energy in the frequency converter

The emergency stop and emergency shutdown devices:

- are located in an easily accessible position,
- lock when activated,
- and have a direct effect.

Emergency stop and emergency shutdown devices are only operated in an emergency. Their malfunction is therefore rarely noticed. In an emergency, a malfunction can lead to fatal or serious injuries.

➢ Check emergency stop and emergency shutdown devices regularly. Restarting after an emergency stop or emergency shutdown:

➢ Check the cause of the activation.

➢ If the cause is unclear, do not start the machine.

➢ Rectify the cause.

➢ Reset the emergency stop or emergency shutdown device.

➢ Start automatic operation.

During maintenance work, turn off the machine's main switch, unplug the power cord, and secure it to prevent it from being plugged back in.

3.6.3 Protective conductor, grounding, and equipotential bonding

The following are installed on the machine:

Designation	Function	Pictogram
Protective conductor	Protects people from electric shock.	
Equipotential bonding	Establishing electrical connections between conductive parts to achieve potential equalization.	

4 Machine description

4.1 Scope of delivery

The scope of delivery includes:

- a machine with cable and connector,
- dust protection tape,
- charger with charging cable,
- key for control box,
- safety lock

Not included in the scope of delivery:

- Connection cable from the connector plug to the power source,
- Grinding tools.

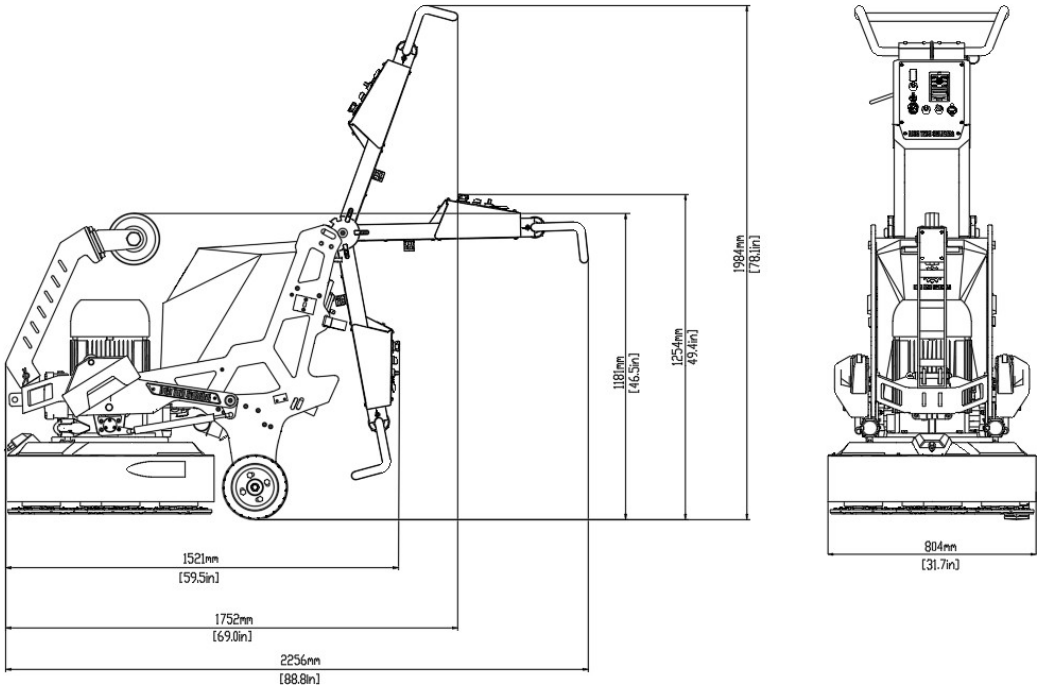
4.2 Technical Specifications

➢ Operate the machine within the limits of the technical specifications.

Designation	Value
Drive motor speed	650–1,950 rpm
Number of tool holders	3 or 4
Grinding head speed	300–900 rpm
Vacuum connection	Easy Connect 80 mm
Grinding contact pressure Front swivel weights without additional weights	410 kg

The sanding pressure can be increased using suitable additional weights.

4.2.1 Dimensions, weights, and volume of the machine



Machine dimensions

Designation	Value
Dimensions in grinding position W x L x H	804 mm x 2,256 mm x 1,254 mm
Dimensions, handle in upper position W x L x H	804 mm x 1,752 mm x 1,984 mm
Dimensions in transport position	804 mm x 1,521 mm x 1,181 mm
Grinding wheel, diameter	278 mm
Tool holder, diameter	278 mm
Grinding width of the machine	800 mm
Total weight, empty	720–730 kg
Water tank capacity	25 L

4.2.2 Environmental conditions

Designation	Value
Maximum angle of inclination of the ground	6°
Operating temperature	-10 to 40°C
Operating and storage temperature	5°C to 60°C
Humidity	max. 90% No condensation

4.2.3 Noise emission

The grinder generates significant noise emissions during operation. These depend on:

- the substrate,
- tool type,
- rotational speed,
- operating environment.

Measured values

Measured variable	Designation	Value	Measurement uncertainty	Reference standard
A-weighted emission sound pressure level at the workplace	L_{pA}	86 dB(A)	+ 2 dB	EN ISO 11201
A-weighted sound power level	L_{WA}	99 dB(A)	:!: 2 dB	EN ISO 3744
Peak sound pressure level	L_{pC,peak}	130 dB(C)	+ 2 dB	EN ISO 11201

The values were determined in accordance with the following recognized method:

- EN ISO 11201 - Acoustics - Noise emission from machinery and equipment - Determination of emission sound pressure levels at the workplace and at other specified locations in a substantially free sound field above a reflecting plane with negligible ambient corrections
- EN ISO 3744 - Acoustics - Determination of sound power and sound energy levels of noise sources from sound pressure measurements - Envelope method of accuracy class 2 for a substantially free sound field over a reflecting plane

The determined noise values meet the requirements of the Machinery Directive 2006/42/EC, Annex I, Section 1.7.4.2 (u). They do not constitute a guarantee but serve to compare different machine models under standardized conditions.

The values apply to intended operation under typical operating conditions on a concrete floor. The actual noise level may vary.

➢ Take appropriate noise control measures.

Noise control measures

The operator is obligated to regularly monitor noise levels at the workplace and, if necessary, implement organizational protective measures

Directive 2003/10/EC.

➢ Wear hearing protection at 80 dB(A) or higher.

➢ Remove persons without hearing protection from the noisy area

Occupational safety

If the daily noise exposure level exceeds 85 dB(A), the employer must provide personal protective equipment (PPE) for hearing protection and instruct employees on how to use it.

➢ Wear hearing protection throughout the entire grinding operation

e.g., earmuffs with an SNR * of 25 dB.

4.2.4 Vibration

Vibration-related stress occurs during machine operation, influenced by:

- grinding process,
- machine settings,
- tool type and condition,
- the substrate,
- the operator's working method.

The following values were measured under standardized conditions in accordance with EN ISO 20643 and EN ISO 5349-1/-2. They are used to assess hand-arm vibration exposure.

Vibration exposure limit values

Type of limit value	Parameter	Assessment
Action value	A(8) = 2.5 m/s*	If exceeded: Risk assessment required
Exposure limit	A(8) = 5.0 m/s*	Must not be exceeded

The table provides limit values in accordance with EU Directive 2002/44/EC on minimum health and safety requirements regarding the exposure of workers to the risks arising from vibration.

Measurements taken at the machine

Measured variable	Designation	Measured value	Measurement uncertainty ity	Reference standard
More effective Vibration Total value (Hand-Arm)	a_{hv}	3.2 m/s*	+ 0.5 m/s”	EN ISO 20643 / EN ISO 5349-1
Assessed daily vibration exposure	A(8)	2.0 m/s	+ 0.5 m/s”	EN ISO 5349-2

The measured values were determined under standardized conditions in accordance with EN ISO 20643 and EN ISO 5349-1/-2. They are used to assess hand-arm vibration exposure. The specified measured values were determined under practical conditions on a concrete floor.

The specified vibration values meet the requirements of the Machinery Directive 2006/42/EC, Annex I, Section 1.7.4.2 (v). They are intended for comparing different machine models and do not constitute a guarantee for specific operating conditions.

Result

The measured vibration value of the machine is below the statutory trigger value, provided the machine is operated as intended and with properly maintained grinding tools.

Measures for Vibration Reduction Operator

The employer or operator is obligated to regularly assess the actual vibration exposure at the workplace and, if the limit or trigger values are exceeded, to take appropriate protective measures in accordance with the Noise and Vibration Occupational Safety and Health Regulation (LärmVibrationsArbSchV).

These include, in particular:

- Organizational limits on working hours,
- provision of ergonomic aids,
- regular training of employees,
- documentation of measurement results.

Operator

➢ To reduce vibration exposure, follow these guidelines:
  - Regularly check grinding tools for imbalance, wear, or damage, and replace them in a timely manner.
  - Always guide the machine with both hands in a controlled manner.

- Wear vibration-damping gloves.
- Limit work intervals and take regular breaks.
- Apply grinding pressure evenly and do not use excessive force.
- Ensure a stable, level working surface.

4.2.5 Maintenance with power and Operating fluids Electrical power supply

Designation	Value
Mains voltage	380 V / 3-phase, neutral, protective earth
Rated power	22 kW
Rated current	38 A
Input frequency	50 / 60 Hz
Frequency converter	22 kW
Electrical connection	CEE 32 A — 380 / 400 V

The machine is connected to the power supply via a power cord. The supply voltage is 380 V.

➢ Use the machine only with the control box closed.

After switching off or unplugging the power cord:

⚠ **DANGER.** High voltage is still present in the frequency converter after unplugging the power cord. Touching electrical components is fatal.

➢ Do not touch electrical components.

➢ Wait until the indicator light goes out.

Battery for maneuvering

The machine is equipped with a battery. It provides a voltage of 24 V. The battery powers only the drive wheels. It can be activated as a maneuvering aid, e.g.: During maneuvering:

- to another work site.
- To a means of transport.

It is not intended for or suitable for soil cultivation. The battery charges:

- automatically when the machine is connected to the 380-V internal power supply. Or:
- via the charger connection on the machine. The

advantage is that no 32A power supply is required.

The charge status is displayed on the panel above the control box

Water for wet grinding

Designation	Value
Water tank, volume	25 L
Water quality	Municipal water

5 Structure and Components

5.1.1 General view



Item	Description	Item	Description
1	Water tank	2	Engine
3	Machine rack	4	Gearbox and grinding wheels

5	Front nozzle	6	Dust guard
7	Handle	8	Control panel
9	Control and operating console	10	Weights
11	Drive wheels	12	Headlights

5.2 Controls

5.2.1 Control panel on the guide and control console

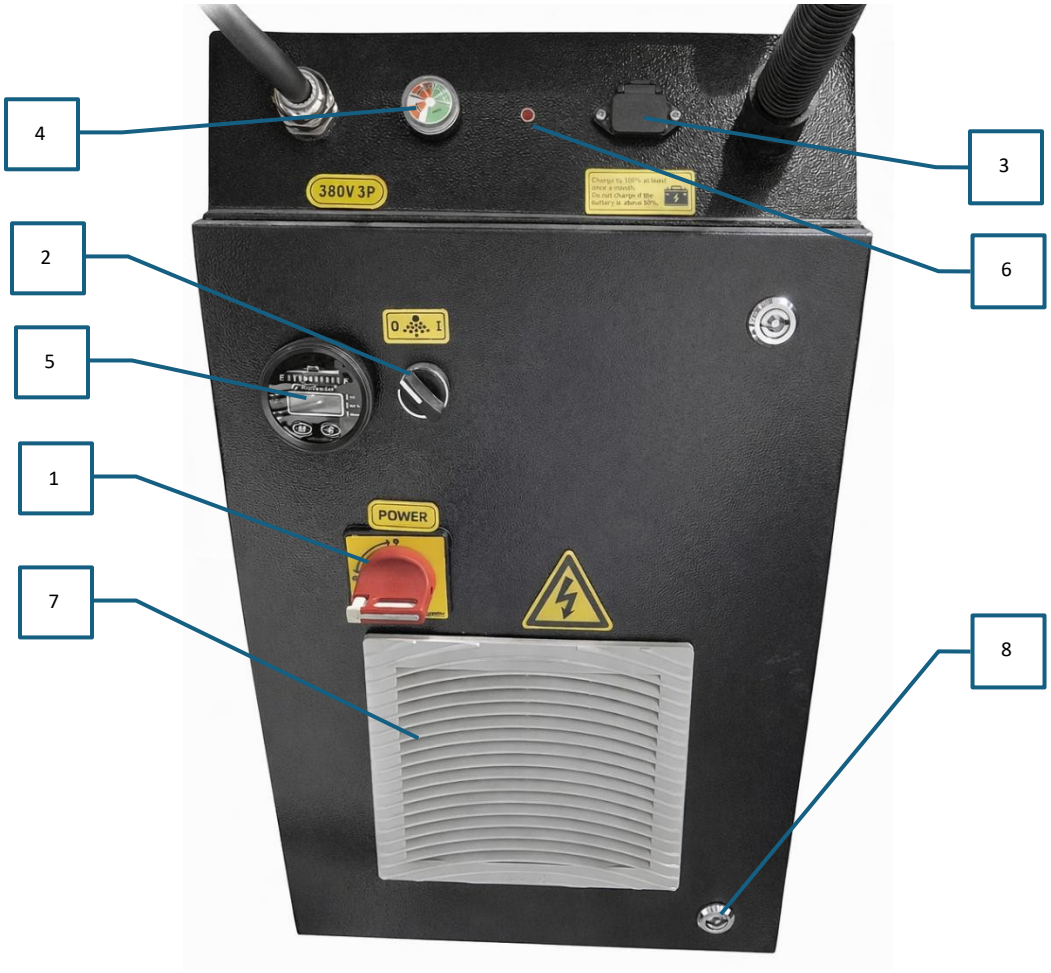


Item	Description	Function
1	Handle	The ergonomically shaped handle of the grinder allows for secure guidance and ensures comfortable and precise handling.

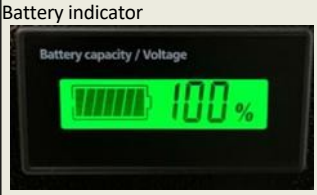
2	Speed control for grinding 	Sets the speed of the tool heads in the range from 0 to 10 • 0 = Turtle symbol: lowest speed • 10 = Rabbit symbol: o Highest speed
3	Direction selector switch 	Three positions: •  = Grinding direction counterclockwise • 0 = Grinding drive off •  = Grinding direction clockwise
4	Emergency stop button 	Stops dangerous movements immediately
5	Drive feed 	Three positions • Top = Feed in grinding direction • Middle = Feed out Bottom = Feed backward

6	Feed speed control 	Sets the feed speed in the range from 0 to 10 • 0 = Turtle icon: lowest speed • 10 = Rabbit symbol: o highest speed
7	LED switch	Light on and off
8	Frequency Converter Display	Display of performance values
9	USB interface 	Digital access for display, support, and service access

5.2.2 Controls on the control cabinet



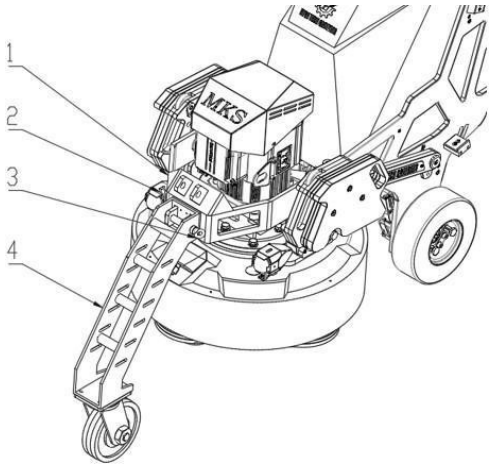
Item	Description	Function
1	Main switch with emergency stop function 	Turns the power supply on and off. Position 0: • All electrical components are de-energized. • There is voltage on the supply line leading to the main switch. • The frequency converter retains a residual voltage even after being switched off Position 1: • Voltage is present at the electrical components.
2	Selector switch	Turns the water supply on and off

	Water supply	
3	Charging cable connection	Charging port for charging the internal battery Use only the original charging cable
4	Charging indicator 	Displays the charge level of the internal battery. • Solid yellow: Battery level <50% • Flashing yellow: Battery level 50–75% • Flashing green: Battery level 75–99% • Solid green: Battery level 100%
5	Battery indicator 	Displays the current battery level
6	Power indicator	Lights up when the machine is powered on
7	Exhaust filter	Provides fresh air supply to the control box
8	Lock	Keeps the switch box closed. Can only be opened with a special key

6 Transport

To make it easier to move the machine, it is shipped with a transport wheel. This wheel is attached to the machine by hand and locked into place.

6.1.1 Machine in transport position

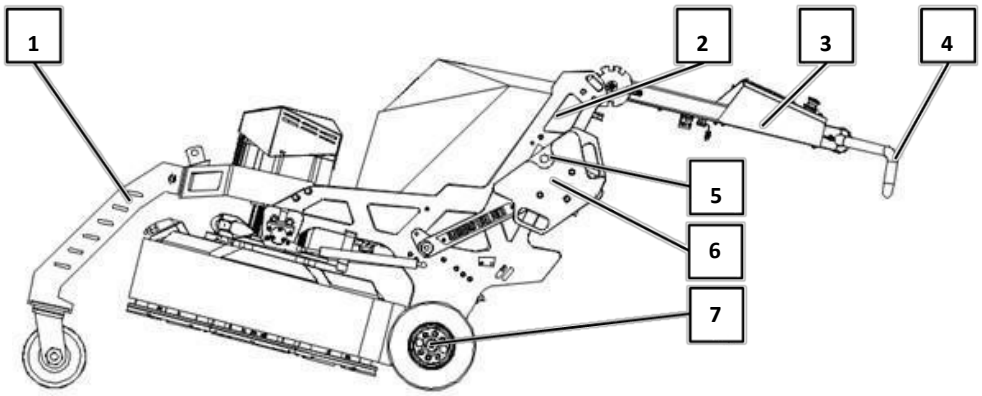


Transport wheel in mounted position

Pos.	Designation	Pos.	Description
1	Front support frame	2	Retaining pin
3	Bolt	4	Transport wheel

The transport wheel is mounted for moving the machine to the work site. This lifts the grinding tools off the ground and protects them from damage. The machine is easier to move to the new work site.

6.2 Set up transport position



Item	Description	Item	Description
1	Transport wheel	2	Rack
3	Control and operator console	4	Handle
5	Locking pin	6	Weight in transport position
7	Drive wheel with locking pin	-	-

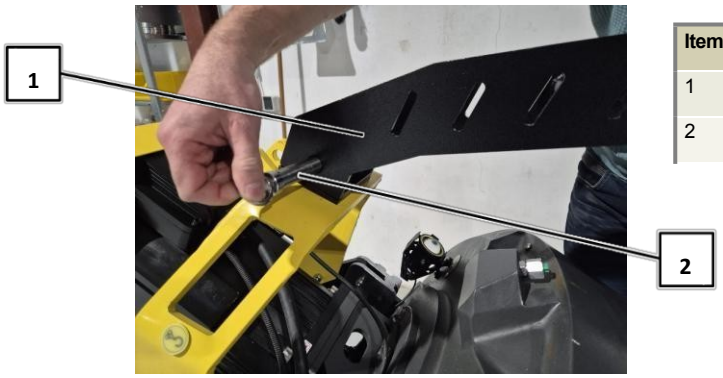
c.2.1 Installation of the transport wheel

1. Tilt the machine



Item	Description
1	Transport wheel
2	Rack

2. Hook in the transport wheel.



Item	Designation
1	Transport wheel
2	Rack

3. Connect with bolts.

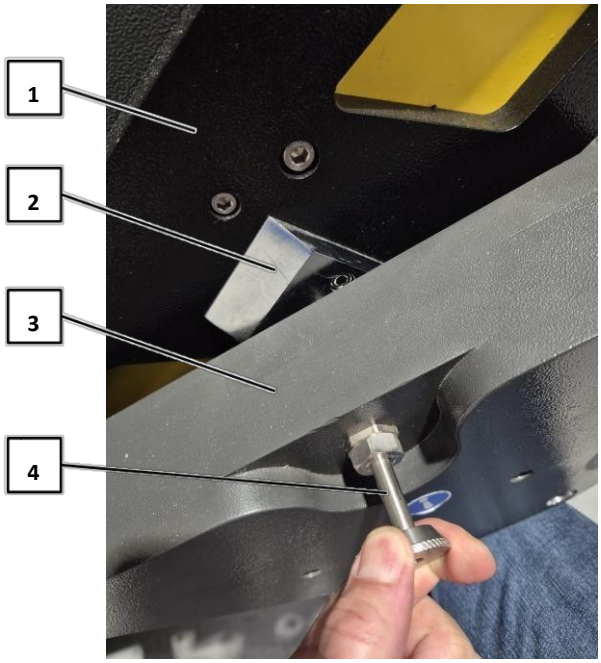


Item	Description
1	Transport wheel
2	Bolt
3	Locking pin

4. Secure with a locking pin.
5. Erect the machine.

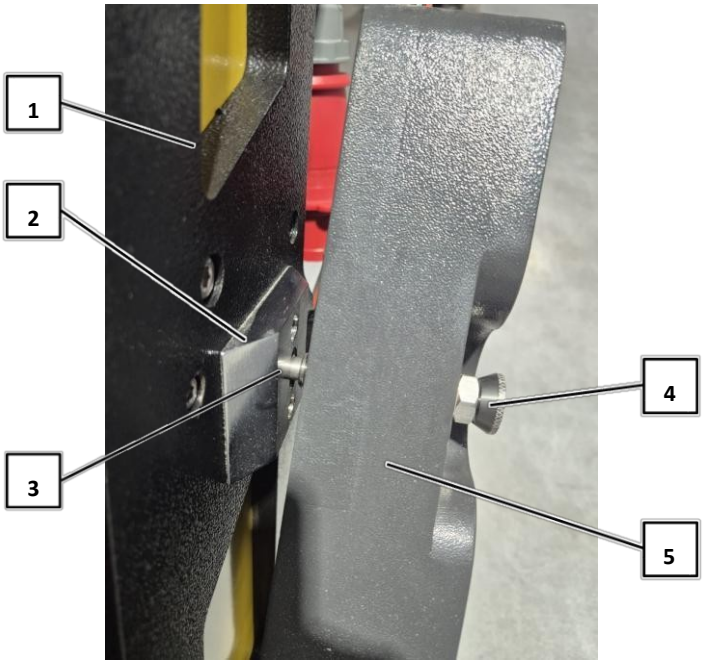
6.2.2 Setting the transport position of the weights

1. Grasp the weight.



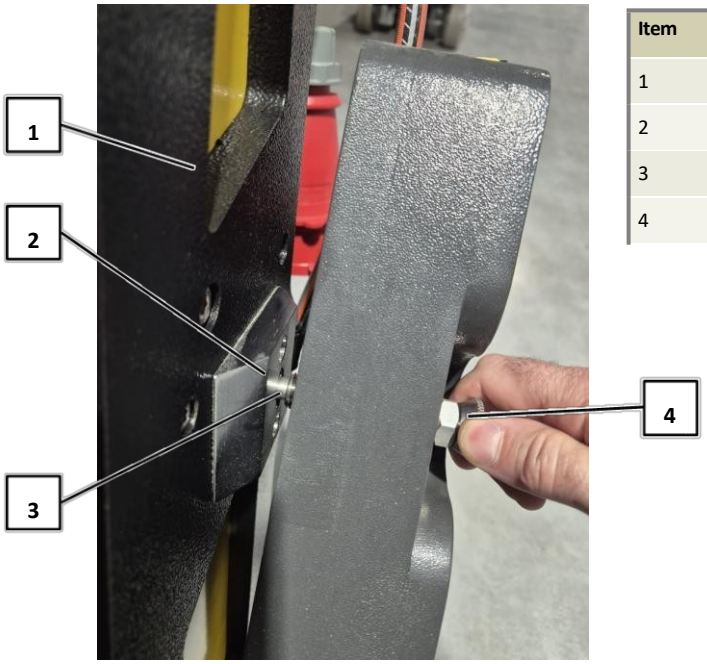
Item	Description
1	Machine frame
2	Locking block
3	Weight
4	Locking pin

2. Pull and hold the locking pin
3. Move the weight to the transport position



Item	Description
1	Machine frame
2	Locking block
3	Weight
4	Locking pin
5	Weight

4. Snap the locking pin into place on the rack.



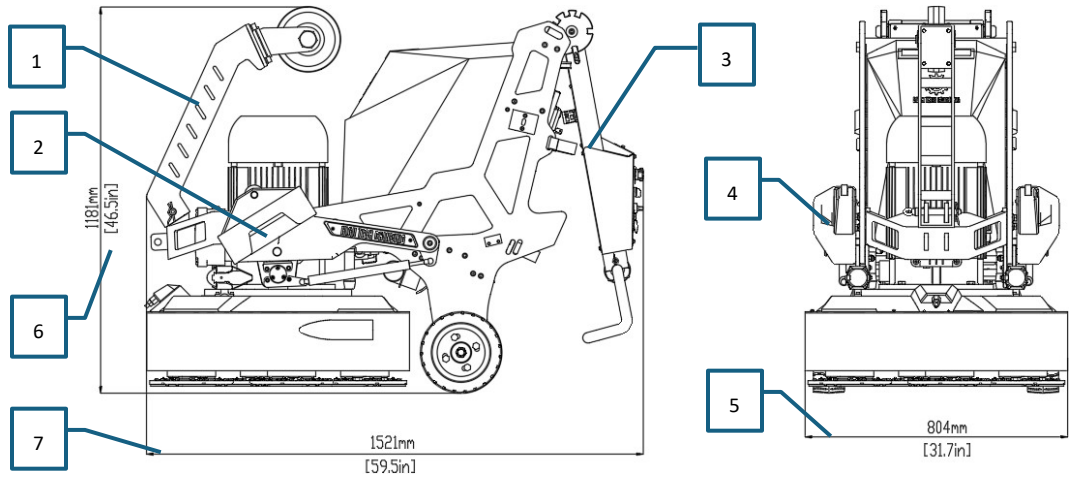
Item	Description
1	Machine frame
2	Locking block
3	Weight
4	Locking pin engaged



5. Release the weight. The transport position of the weight is set. The machine's center of gravity is slightly offset beyond the drive wheels.

6.3 Prepare the machine for packaging

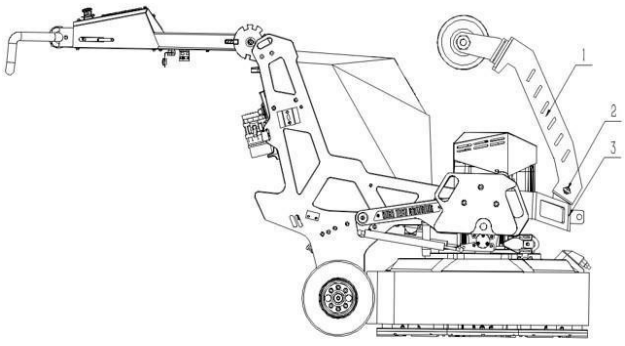
6.3.1 Packing view and packing dimensions



Package view and dimensions of the machine

Item	Description	Item	Description
1	Transport wheel	2	Weight in working position
3	Control and operating console with handle	4	Weight in retracted position
5	Pack width approx. 804 mm	6	Pack height approx. 1,181 mm
7	Pack length approx. 1,521 mm	-	-

6.3.2 Raise transport wheel



Side view of transport with transport wheel raised

Item	Designation	Item	Description
1	Transport wheel	2	Bolt with retaining pin
3	Support frame	-	-

- Unplug the power cord and secure it so it cannot be plugged back in.
- Attach the transport wheel and hold it in place.
- Insert the bolt.
- Insert the retaining pin.
  The transport wheel is raised and secured.

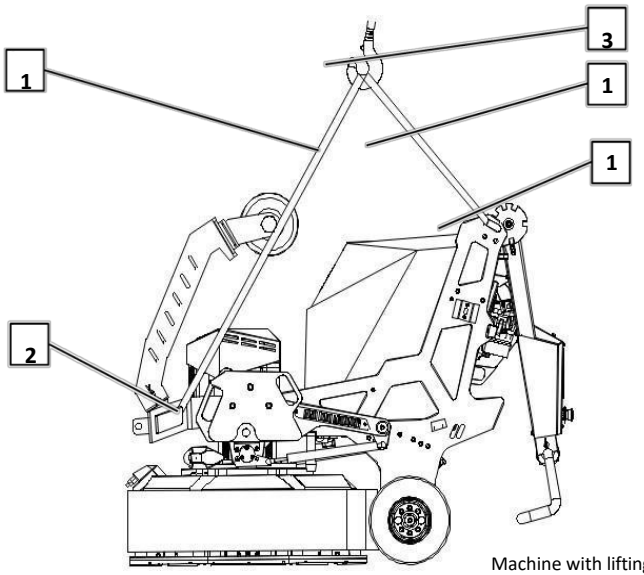
6.3.3 Bring the weight into the working position

Placing the weights in the working position shifts the machine's center of gravity. The machine:

- Can be loaded more easily.
- stands more securely on the transport vehicle.

6.4 Transporting the machine

Lifting the machine



Machine with lifting equipment

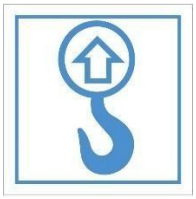
Item	Description	Item	Description
1	Hoisting device	2	Lifting eyes in the area of the motor, 2 pieces
3	Crane hook	4	Hoist
5	Lifting eyes on the rack	-	Center of gravity

Attach load

- Design the load capacity of the crane hook and lifting equipment to match the machine weight

.

- Have two hoists and a crane ready.
- Use undamaged slings and lifting eyes.



  - Pass a lifting device through the two lifting eyes on the machine frame near the motor.
  - Guide the second lifting device through two lifting eyes on the rack.

- Hook the lifting devices onto the crane hook.
- Check the positioning of the lifting devices.
- Lift the machine slightly and check the load distribution. The load must not tip over when slightly lifted.

Loading the machine

- **DANGER** The load may fall and cause serious or fatal injury to persons.

- Do not stand under suspended loads.
- Raise the load slightly.
- Check the positioning of the lifting equipment and the load distribution. When lifting over high obstacles:
  - Use ropes that are sufficiently long and suitable.
  - Adjust the lifting height of the load according to local conditions.
  - Check the lifting height, swing, and/or travel range.

Cranes:

  - Lift the load with a crane and place it in a transport crate.
  - Depending on:

  - the expected transport route and
  - external conditions

, protect the machine from moisture on all sides.

- Secure the machine in the transport crate.
- Seal the transport crate.
- Transport crate:

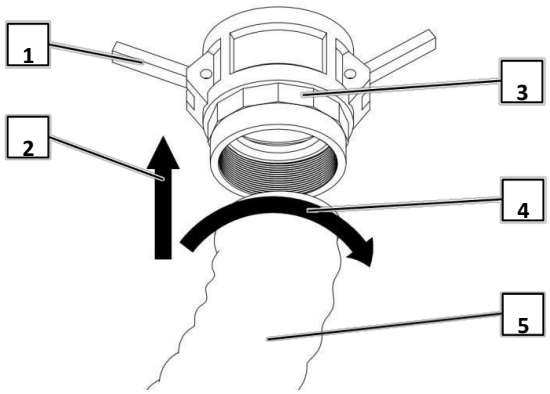
- Lift using lifting equipment at the lifting points and place on the transport vehicle.
- Secure against slipping and tipping.

7 Installation

7.1 Receive the machine and remove the packaging

- ⚠ Check the packaging for damage.
  If the packaging is damaged, notify the shipping company.
- ⚠ Inspect the machine for damage.
- If there are signs of damage, report the damage to the dealer.
- ⚠ Check that the machine matches the agreed scope of delivery.
- If you have any questions, contact the dealer

7.1.1 Connect the vacuum cleaner hose



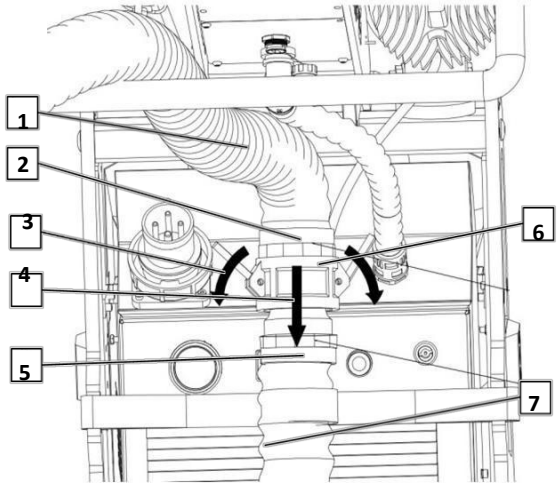
Connecting the vacuum cleaner hose

Item	Description	Item	Description
1	Clamping bracket	2	Insertion direction Vacuum cleaner hose
3	Quick-release fastener Vacuum cleaner side	4	Direction of rotation of the vacuum cleaner hose
5	Vacuum cleaner hose	-	-

Screw the vacuum cleaner hose into the quick-release coupling on the vacuum cleaner side.

Property damage

- Do not pull the machine by the vacuum hose.
- Always hold the machine by the designated handles and grips.



Connecting the vacuum cleaner hose – 2

Item	Description	Item	Description
1	Vacuum cleaner hose	2	Quick-release coupling Vacuum cleaner side
3	Closing direction of the clamping bracket	4	Direction of attachment of the quick-release fastener Vacuum cleaner side
5	Quick-release fastener Machine side	6	Clamping direction of the clamping bracket
7	Machine suction hose	-	-

- Place the quick-release fastener on the vacuum cleaner side onto the quick-release fastener on the machine side and screw them together.

- Close both clamps.

The vacuum hose is secured to the machine.

8 Commissioning

8.1 Checklist before initial startup

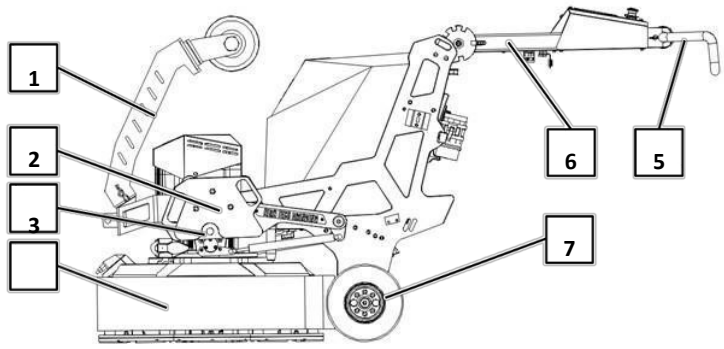
- Visual inspection

- Test the emergency stop
- Check safety systems

8.2 Set the machine to the grinding position

The machine is moved to the grinding position. This includes: CAUTION Do not grind with the transport wheel lowered.

- Raise the transport wheel
- Alternatively, the transport wheel can also be removed.
- Adjust the handle
- Adjust the guide and control console
- Weight in working position
- Assemble tool
- Fill the water tank



Machine with feed wheel in grinding position

Item	Description	Item	Description
1	Transport wheel	2	Weight in working position
3	Locking pin	4	Drive with gearbox
5	Handle	6	Control and operating console
7	Drive wheel with locking pin	-	-

8.2.1 Adjust the working position of the weights

Grasp the weight.

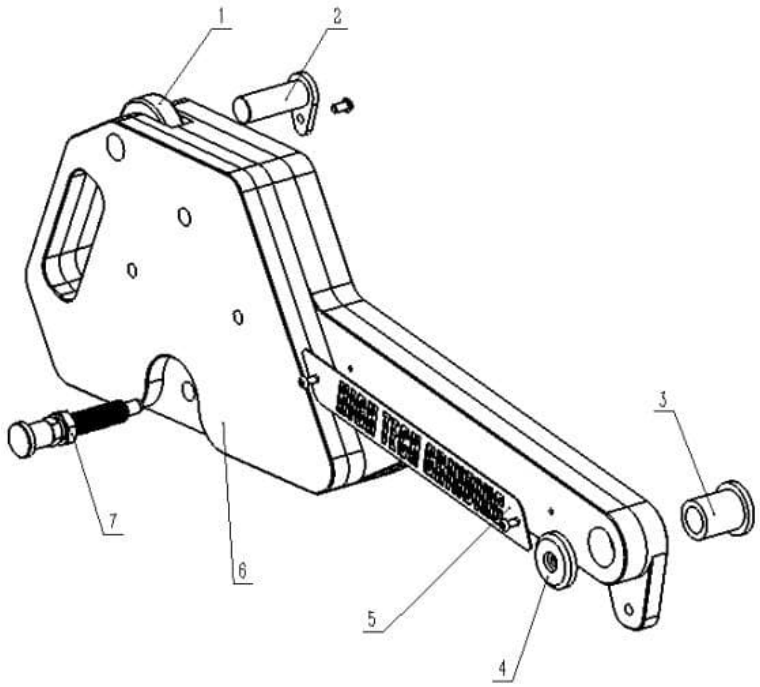
- Pull and hold the locking pin.
- Move the weight into the working position.

- Snap the locking pin into the fixed block on the rack.
- Release the weight.

  The center of gravity is positioned over the grinding discs. This increases the pressure on the floor surface being processed. The machine grinds evenly and intensively.

8.2.2 Position of the weights

Weight with locking pin



Item	Designation
1	Support roller
2	Axle pin
3	Bushing, copper
4	Cover
5	HIGH TECH GRINDING
6	Weight
7	Locking pins

The machine has one weight on each side with an identical design. Each weight is permanently mounted on a swiveling arm. The weights are used to shift the machine's center of gravity. The weights can be adjusted and locked into three positions.

Positions







Weight positions

Pos.	Designation	Pos.	Description
1	Tilt position	2	Grinding position
3	Transport position	-	-

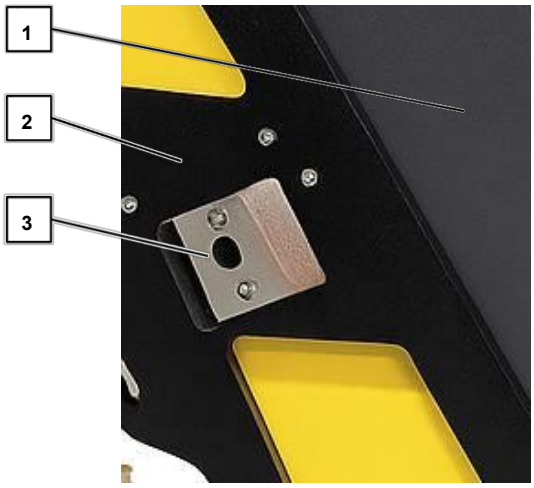
When adjusting a position, always move both weights to the desired position

Fixing points and locking pins on the weight



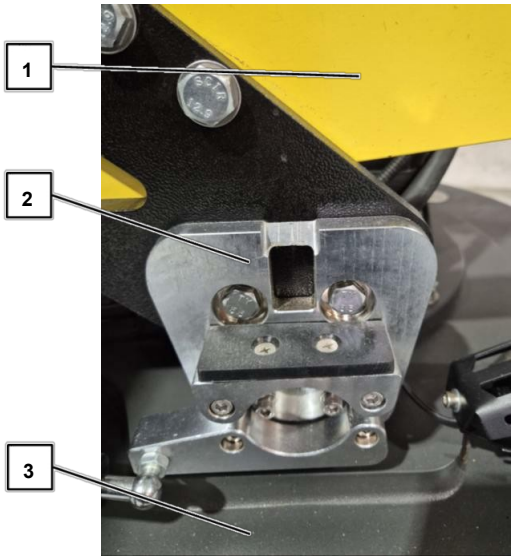
Item	Description
1	Weight
2	Mounting point for locking pin
3	Drive wheel

Fig. 7 Fixing point for the locking pin – tilted position



Item	Description
1	Water tank
2	Control and operator console
3	Mounting point for locking pin

Fig. 8 Mounting point for the locking pin – transport position



Item	Description
1	Mounting bracket for transport wheel
2	Fixing point for locking pin
3	Gearbox area

Fig. 9 Mounting point for the locking pin – grinding position

8.2.3 Adjusting the handle and the guide and control console

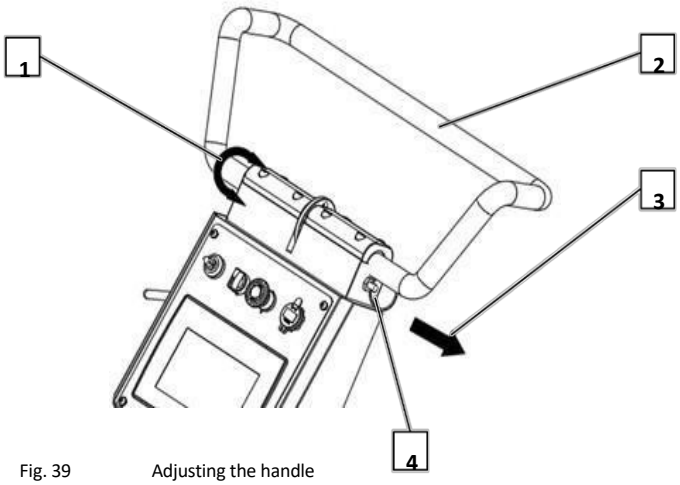


Fig. 39 Adjusting the handle

Pos.	Designation	Pos.	Description
1	Swivel movement of the handle	2	Handle
3	Pull direction of the adjustment pin	4	Adjustment pin

The handle can be adjusted to the operator's ergonomics in several steps. Position the handle:

➢ Hold the handle.

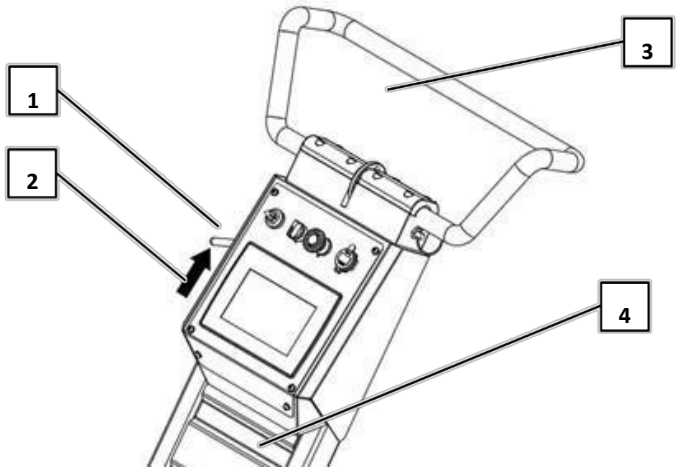
- Pull out the adjustment pin and hold it.
- Move the handle up or down slightly to the desired position.
- **WARNING**: If the adjustment pin is not fully retracted, the machine cannot be operated safely. The handle may shift.
- Release the adjustment pin.

  The adjustment pin will slide into the correct position on its own. The handle is locked in place.
- Operate the machine only with the adjustment pin fully inserted

If the adjustment pin does not immediately slide into the round hole on its own:

- Gently shakethe handle.
- Move the adjustment pin with a slight jiggling motion, but do not pull it out or force it into the round hole.

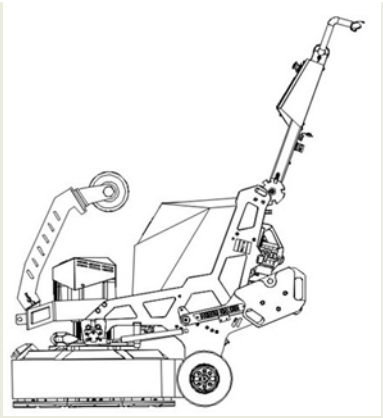
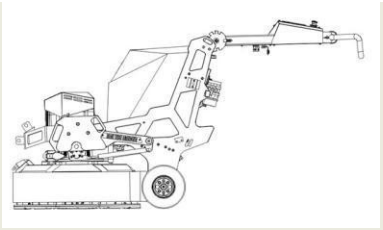
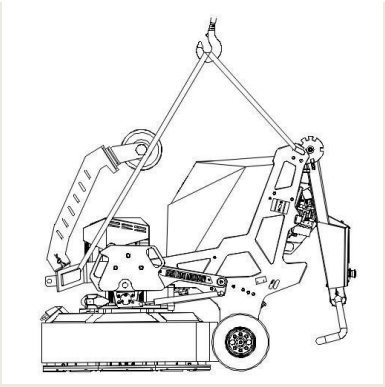
Guide and control console



Adjusting the Control and Operator Console

Item	Designation	Item	Description
1	Adjustment knob	2	Direction of travel of the control lever
3	Handle	4	Control and operating console

The control and operating console can be adjusted to several positions:

Maximum upper position	Middle position	Lowest position
		
Example: in preparation for the tilting position	Example: in working position	Example: in transport position

⚠ **WARNING** The detached control and operating console will tip over due to gravity.

- Hold the control and operating console by the handle.
- Grasp the adjustment handle and loosen it.
- Move the guide and control console to the desired position.
- Snap the adjustment handle into place.

8.3 Fill the water tank

Filling the water tank is only necessary for wet sanding.

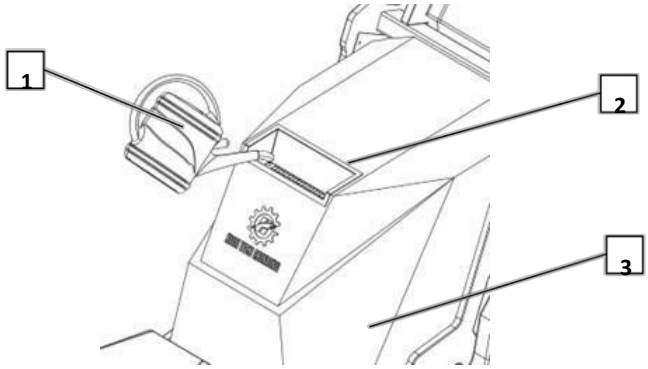
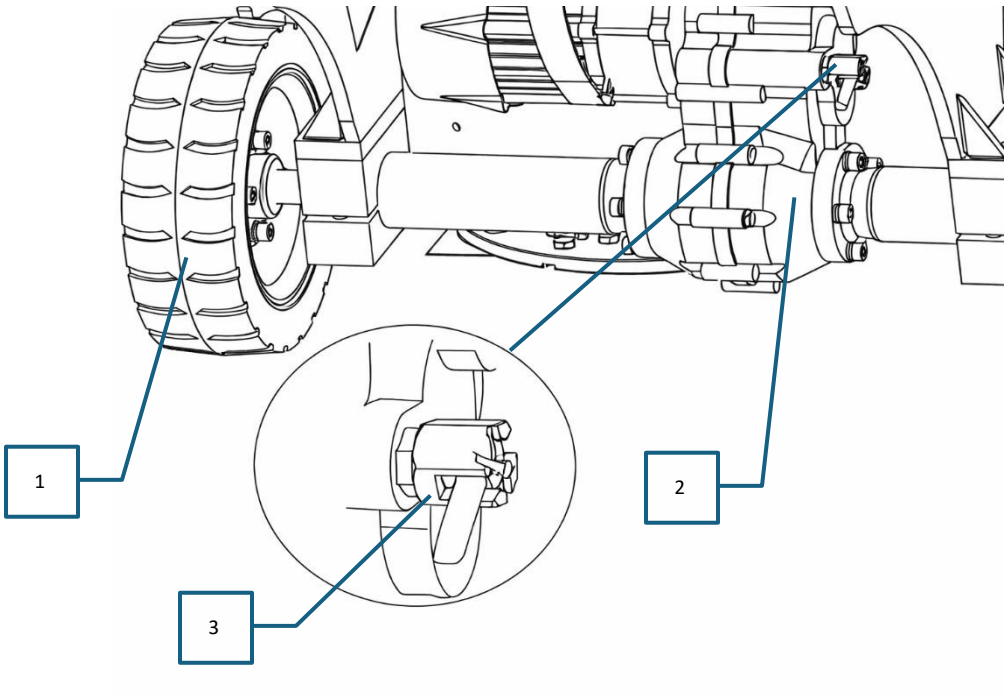


Fig. 41 Filling the water tank

Item	Designation	Item	Description
1	Watering can	2	Filling opening
3	Water tank	-	-

⚠ Use the watering can to fill the water tank with tap water. The water tank has a maximum capacity of 25 liters.

8.4 Drive wheels with locking pins

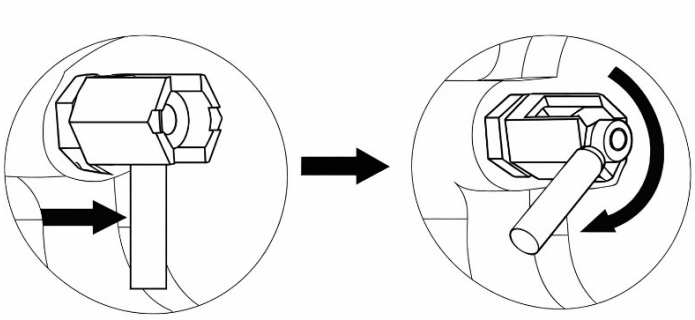


Item	Description	Item	Description
1	Drive wheels	2	Drive motor
3	Locking pin	-	-

The machine has a drive wheel on each side. By locking the locking pin, the sander can be moved motorized via the feed switch.

If the locking pin is not engaged, the machine can be moved by hand.

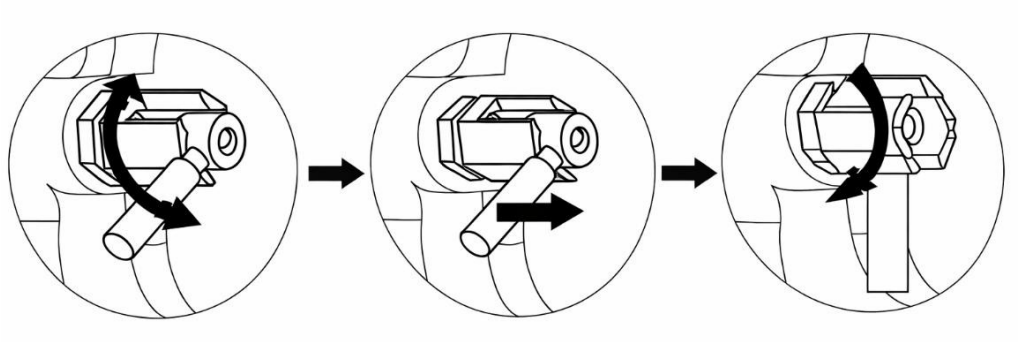
Unlock the locking pin



1. Pull the locking pin
2. Rotate the locking pin or locking sleeve 90°
3. Release the locking pin
4. The locking pin is now in the groove of the locking sleeve

The machine's drive no longer acts on the drive wheels. The machine can be moved by hand.

Lock the locking pin



1. Pull the locking pin
2. Rotate the locking pin or locking sleeve 90°
3. Release the locking pin
4. The locking pin now rests on the locking sleeve

The machine's drive now acts on the drive wheels. The machine can be moved motorized using the feed switch

8.4.1 Dust protection

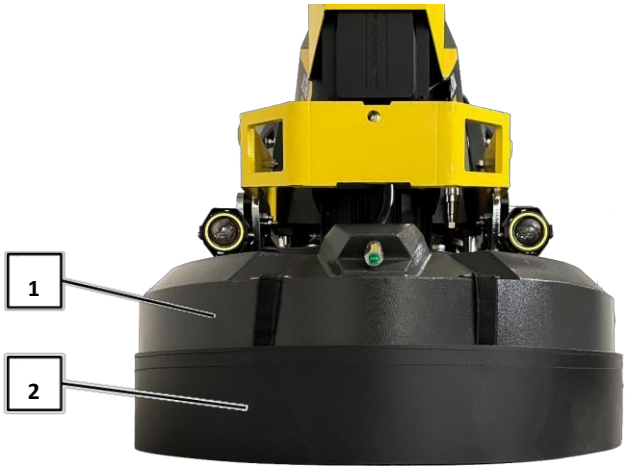


Fig. 20 - Dust guard

Item	Description
1	Gearboxes and grinding wheels
2	Dust protection

The dust guard prevents dust from escaping during operation.

➢ Install the dust guard before starting work.

8.5 Mounting Grinding Tools

The grinding tools are not included with the machine or in the scope of delivery and must be provided by the operator. The grinding tools must be suitable for the tool holders.

ATTENTION: Numerous different grinding tools and systems are available on the European market. HTG Europe therefore supplies each grinding machine individually with the tool holders that meet the requirements of the respective customer.

When installing and using the grinding tools, **always** follow **the instructions and installation guidelines** provided **by the respective tool manufacturer**. This is the only way to ensure safe operation of the machine.

HTG Europe GmbH assumes no liability for damage, hazards, or malfunctions resulting from incorrectly installed or non-approved tools.

8.5.1 Disconnect the machine from the power supply

➢ Unplug the power cord and secure it to prevent it from being plugged back in.

⚠ **DANGER**. High voltage is still present in the frequency converter after the power plug has been unplugged. Touching electrical components is fatal.

➢ Do not touch electrical components.

- Wait until the indicator light goes out. The machine is de-energized.

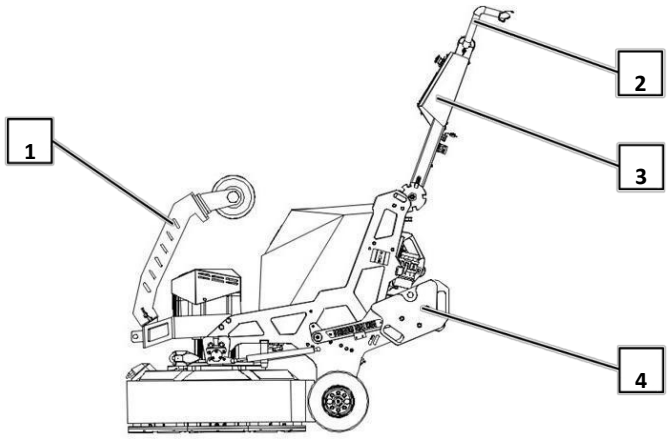
8.5.2 Tilt the machine

Move the weight to the tilting position

- Grasp the weight.
- Pull and hold the locking pin →.
- Move the weight to the tilting position.
- Engage the locking pin.
- Release the weight.

The center of gravity is behind the wheels and stabilizes the subsequent tilted position.

Position the control console and handle vertically



Machine with vertical control and operator console

Item	Description	Item	Description
1	Transport wheel	2	Handle
3	Control and operating console	4	Weight in tilted position

Tilt machine



Machine in tilted position

Item	Designation	Item	Description
1	Work area for tool change	2	Drive wheel
3	Weight in tilted position	4	Control and operator console

WARNING Risk of tipping on uneven ground.

- Tilt the machine only on level ground.
- Do not place any objects underneath.
- After tilting, check the stability of the tilted position.

If the tilting instructions are followed, the machine will remain secure and immovable in the tilted position.

Procedure:

⚠ **WARNING** The machine is tilted by hand. Tilting requires considerable force. Strain is possible.

- If necessary, have a second person assist by also gripping the handle and tilting the machine.
- Instruct personnel.
- Grasp the handle.
- Place one foot on the weight.
- The machine:
- Press firmly toward the floor using the handle.
- Place the handle on the floor. The machine is in a tilted position.
- Check the machine for stability.

8.5.3 Installing grinding tools

⚠ **CAUTION:** Hot surface. Immediately after use, the grinding tool may be hot.

- Allow the grinding tool to cool.

Installing grinding tools Step 1:

- Disconnect the machine from the power supply
- Tilt the machine
- Illuminate the work area.
- If present, thoroughly remove dirt, sanding dust, and chips from the tool holders using a hand brush and vacuum cleaner.

Step 2:

- Use grinding tools in accordance with the manufacturer's instructions.
- The grinding tools must be:
  - symmetrical,
  - secure, and
  - fit

  in the tool holders.
- Grasp the machine by the handle and swing it back to the working position.

Start up the machine after tool installation

- Move the machine to the working position.
- Unlock the emergency stop switch.
- Plug in the power cord.
- Turn on the machine.
- Start the motor using the ON–OFF switch in the direction of rotation.
- Set the speed control to 1.
  The motor is running at the lowest speed. Tool movement begins.
- Check tool movement.
- If you hear:
  - unusual noises,
  - vibrations,

- imbalances.

Turn off the machine and disconnect the power supply.

➢ Check the installation of the grinding tools.

8.5.4 Remove the grinding tools

➢ Disconnect the machine from the power supply
➢ Tilt the machine
➢ Illuminate the work area.
➢ Carefully loosen the grinding tool, depending on the type of grinding tool used, with:
- rubber mallet or
- a flat-blade screwdriver.

➢ Dispose of worn grinding tools according to the manufacturer's instructions.

6 Operation

WARNING:

- Uncontrolled movements of the machine are possible
- Always hold the machine by the handle

6.1 Turning on

Step 1:

⚠ Move the machine into the working position
⚠ Plug in the power cord.
⚠ When dry sanding, connect the vacuum cleaner and turn it on
ⓘ The vacuum cleaner is not part of the machine described in this operating manual.
➢ Follow the manufacturer's instructions.
➢ When wet sanding, fill the water tank

➢ Check that the grinding direction selector switch is set to “0”.



Step 2:

At the control box:

➢ Turn on the main switch.
The machine starts up. The current machine parameters are displayed on the screen.

At the control panel:

➢ Set the speed for the grinding wheel drive using the speed controller.

➢ The machine starts when the grinding direction is selected on the selector switch.



➢ For wet grinding, turn on the front sprayer.

Step 3:

- Grasp the handle.
- Guide the machine by hand.

6.2 Turn off

Step 1:

On the control panel:

- Use the speed controller to reduce the speed of the drive.
- Set the direction selector switch to “0”.

Step 2:

➢ When dry grinding, turn off the vacuum cleaner.

➢ When wet grinding, turn off the water supply

➢ Turn off the main switch

➢ Unplug the power cord.

6.3 Adjust the speed

The speed of the grinding heads is adjusted using a potentiometer (pot).



- Adjustment range: **0 to 10 (scale)**
- Turn clockwise: **Increase speed**
- Turn counterclockwise: **Decrease speed**

Procedure:

1. Turn on the machine and prepare it for operation
2. Slowly adjust the potentiometer to the desired value
3. The speed changes immediately

Note:
The actual speed depends on the parameters of the frequency converter.

6.4 Emergency Stop



The machine is equipped with an emergency stop that allows for immediate shutdown in case of danger.

- Activate by pressing the emergency stop button
- All drives are stopped immediately.

Restart:

1. Eliminate the cause of the trip
2. Unlock the emergency stop (e.g., by turning)
3. Restart the machine

Warning:
The emergency stop must only be used in case of danger.

6.5 Emergency stop with safety strap

In addition, the machine is equipped with a safety strap (emergency strap).

- The safety strap is connected to the machine via a safety switch
- The other end is attached to the operator's wrist using a Velcro fastener

How it works:

- In an emergency (e.g., if the operator faints), the strap is disconnected from the switch
- This **immediately stops** the **feed drive**
- Uncontrolled movement of the machine is prevented

Important:

- **The grinding drive remains active**
- The safety belt must be properly secured before starting work

- The safety strap does **not** constitute **an emergency stop device in accordance with EN ISO 13850**, but serves exclusively as an additional safeguard for the feed drive.





6.6 Display

The display is used to show the system's operating parameters.



The following values can be displayed:

- Speed of the grinding heads
- Frequency of the inverter
- Current of the inverter (A)
- Power of the inverter (kW)

Operation:

- Display is automatic or via selection on the control panel
- Switching between parameters depending on device configuration

Note:
The displayed values are for monitoring operation and may vary depending on the settings.

6.7 Overload

The motor is equipped with overload protection that triggers automatically and prevents the machi

➢ Do not make any unauthorized modifications.
The overload setting can be reset by qualified personnel under safe conditions.

In case of overload

➢ Stop grinding.

➢ Allow the motor to cool for 10 to 30 minutes.

10 Grind with the machine

10.1 Description of the process

Clear the area to be sanded.

Grinding tools are mounted in the tool holders. These are electrically driven and move in an oscillating motion. The tool holders are arranged so that a continuous grinding path is created as the machine moves. The surface of the floor to be ground is removed evenly. The weight in the working position ensures high pressure on the surface to be ground, thereby improving the quality of the finish.

10.2 Transporting the machine to the work site

To facilitate transport of the machine and ensure quick movement to the desired work site, the machine is equipped with a motorized feed mechanism. This serves as an assistive drive; the operator remains responsible for guiding and controlling the machine.

The machine is equipped with an integrated battery. When sufficiently charged, the machine can therefore be operated without a power cord connected.

To move the machine to the work site, follow these steps:

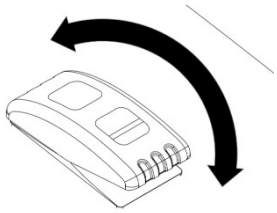
Step 1:

- Install the transport wheel in the support position
- Set the weights to the transport position
- Set the handle and the control console to the working position
- Lock the locking pin
  The drive acts on the drive wheels.

Step 2:

At the control box:

- Turn on the main switch.
- Set the feed switch for forward travel to the upper position.
- Set the feed switch for reverse travel to the lower position.
- Adjust the feed speed using the feed control.
- Guide the machine by hand so you can intervene at any time.
-



10.3 Sloped surfaces

⚠ **WARNING**. Hazard when working on sloped surfaces. If the slope is too steep, the machine may tip over or slide.

- ➢ Check the slope before starting work on an inclined surface.
- ➢ Slope up to 6°:
  - ○ No special precautions are required
- ➢ ⚠ **WARNING**: Slope >6°. The machine may tip over and slide
  - ○ Floor sanding is prohibited.

10.4 Dry sanding

⚠ WARNING: Dust hazard.

➢ Wear respiratory protection.

Dry sanding is

- fast,
- flexible,
- dusty

and suitable for

- rough work,
- renovation work
- preparatory work.

To prevent dust from spreading around the grinding tool, a dust guard is mounted around the tools. Additionally, a vacuum cleaner must be connected to the machine. The vacuum cleaner must be turned on separately and runs continuously during dry grinding.

Follow the vacuum cleaner manufacturer's operating instructions.

➢ Turn off the automatic water supply.

10.5 Wet grinding

Wet sanding is:

- clean,
- precise,
- slower than dry sanding.

and for:

- fine grinding,
- polishing

- suitable for dust-sensitive environments.

The floor surface is sprayed with tap water. To do this, the machine's water tank is filled with tap water. Before starting to sand, the front sprayer is activated on the control panel. When sanding begins, the water supply is turned on via the control panel.

The floor area in front of the machine is moistened by a spray mist. As a result, dust generation is significantly reduced.

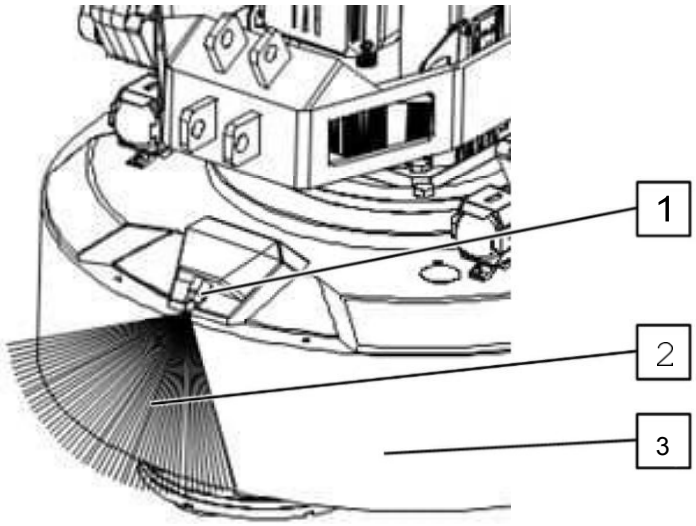


Fig. 17 Spray nozzle in the front area

Item	Designation	Item	Description
1	Spray nozzle	2	Splash water
3	Housing on the gearbox	-	-

Water spray continuously comes out of the spray nozzle.

10.6 Grinding without feed drive

When grinding without the feed drive activated, the machine is guided exclusively by hand. The operator grips the machine by the handle

and guides it in a controlled manner in the desired direction.
The operator should stand directly behind the machine with an upright posture. The operator is solely responsible for feeding the

material.

Notes:

- Consistent pressure and smooth movements ensure optimal sanding results
- The operator is directly exposed to noise and dust emissions during operation
- The operator must maintain full control of the movement at all times

- Keep the power cord in sight at all times to prevent it from being run over or damaged

10.7 Sanding with feed drive

When sanding with the feed drive activated, the machine assists the forward movement.

The operator remains directly at the machine at all times and continues to control it using the handle. The feed drive is designed solely to reduce the amount of force required and make handling easier.

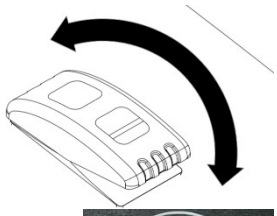
The operator moves with the machine and retains full control over direction and speed at all times.

Notes:

- The feed drive does not replace manual control of the machine
- The machine must be actively controlled by the operator at all times
- The operator is exposed to noise and dust emissions during operation
- Keep a close eye on the power cord at all times to prevent it from being run over or damaged

Turn on the feed drive

- Set the feed switch for forward travel to the upper position.
- Set the feed switch for reverse travel to the lower position.



- Adjust the feed speed using the feed control.
- Guide the machine by hand so that you can intervene at any time.



10.8 Grinding example: Direction of travel

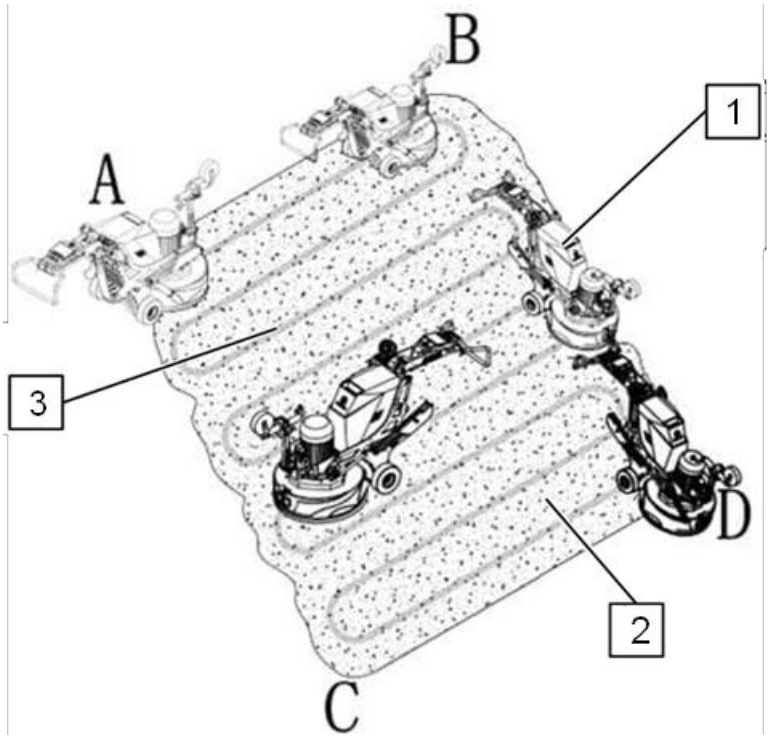


Fig. 18 Grinding path on wide surfaces

Pos.	Designation	Pos.	Description
A	Start point	B	Turning point
C	Turning point	D	Endpoint
1	Machine positions	2	Floor area
3	Grinding marks	-	-

The machine is guided forward in passes across the surface to be processed. The passes are parallel and close enough together that the sanding marks overlap by approximately 20%. Approximately 400 mm to 600 mm before the edge of the surface, e.g., a

wall, the machine is turned around. When turning, the machine follows a curve. As a result, the machine moves 180° in the opposite direction.

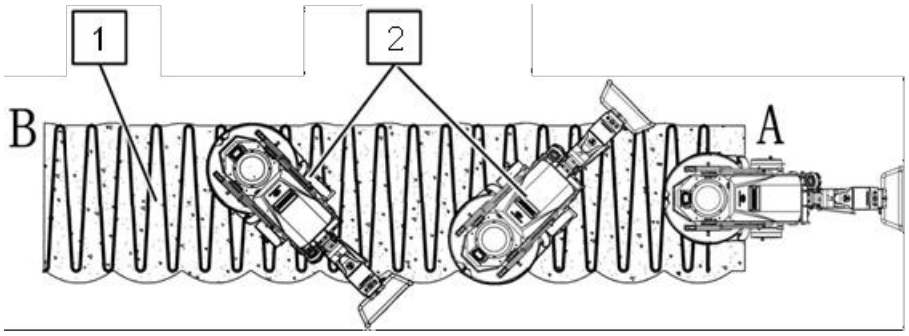


Fig. 19 Sanding path on narrow surfaces

Pos.	Designation	Pos.	Description
A	Start point	B	End point
1	Skid mark	2	Machine positions

Guide the machine forward in a right-to-left motion across the surface to be machined. As the machine reaches the edge of the surface, turn the front of the machine in the direction of travel without making a curve. During grinding, the operator moves slowly but steadily from A toward B.

11Troubleshooting

- If the problem cannot be resolved, contact your dealer.
- Before performing any work, disconnect the machine from the power supply and secure it against being switched back on

Fault	Possible causes	Remedy
Machine does not start	Power plug not plugged in	Check power connection
	Main switch is set to “OFF”	Set the main switch to “ON”
	Fuse tripped or No mains voltage	Check fuse
	Emergency stop activated	Unlock emergency stop
Overload	Excessive material removal or excessive contact pressure	Reduce grinding pressure, adjust speed
	Grinding tool is jammed	Check and clean tools
	Incorrect motor setting in the frequency converter	Contact the manufacturer
Overcurrent	Short circuit at the Motor connection	Check cable connections and insulation
	Damaged motor cable	
	Machine jammed or Check and clean	Check and clean tools
	Incorrect motor parameters in the frequency converter	Contact the manufacturer
Input phase missing	Mains voltage missing on one phase	Check power supply; all 3 phases
	Connection cable or Defective outlet	
Output phase missing	Defect in the frequency converter	Check motor–inverter connection, reset frequency converter; if error persists contact the manufacturer

Frequency converter overheating	Continuous overload of the necessary, Motor	Allow the machine to cool down; if Adjust operating parameters Adjust
	Insufficient ventilation cabinet	Ensure air supply to the control Clean the ventilation slots
	Ambient temperature too	Let the machine cool down
	Fan defective or dusty	FanCheck/Replace
Abnormal power consumption	Defective motor or with	Measure motor current and compare nominal value
	Incorrect motor parameters in the drive	Check the rated current and voltage parameters
	Short circuit or phase-to-phase short	
	Mechanical blockage in the drive system	Check mechanical parts for smooth operation
Irregularity in motor tuning	Motor tuning with incorrect	Engine tuning only (with) parameters unloaded engine Perform
	Machine not unloaded	motor parameterscheckand correct
	Sensor error or cable error	cableand Check feedback sensors
	Drive not matched to motor type	Automatically tuned if necessary Perform tuning again Perform
Engine runs rough or with interruptions	Grinding tools unevenly	toolscheck/replace moderately worn
	Voltage fluctuations	Check power supply
	Frequency converter defective parameter settings	Contact manufacturer for
Insufficient grinding performance	Frequency converter defective parameterized-	SuitableGrinding unittool select
	Incorrect tool selection	Replace tools

	Worn tools	Adjust the speed to the material
	Speed set too low	Increase contact pressure
Dust extraction is not working	Vacuum is turned off or not connected	Turn on the vacuum / check the connection
	Hose is clogged	Clean the hose
	Filter in the vacuum cleaner is clogged	Replace or clean the filter
Excessive vibration during operation	Grinding tools mounted unevenly	Mount tools correctly
	Imbalance caused by damaged segments	Replace damaged segments
	Floor unevenness too severe	Adjust speed, guide machine smoothly
Frequency converter not working / Display dark	No mains voltage at the frequency converter	Check power supply
	Internal frequency converter error	Check fuse in control cabinet
	Control line interrupted	Restart the frequency converter; replace if necessary
Fuse trips	Short circuit in the cable or motor	Check the cables, connectors, and motor
	Overload due to a jammed tool	Check/replace tools
Machine is running, but no looping effect visible	Wrong tool type	Select suitable tools
	Tool is worn	Replace tools
Excessive machine heating	Speed too low	Increase speed
	Grinding load too high	Reduce load
	Ventilation slots clogged	Clean the machine
	Frequency converter fan Failed	Check / replace fan

12 Maintenance

⚠ **DANGER**. High voltage is still present in the frequency converter after unplugging the power cord. Touching electrical components is fatal.

- Do not touch electrical components.
- Wait until the indicator light goes out.

12.1 Maintenance Schedule

12.1.1 Daily

Component	Task
Check the switches and indicators	Turn on the machine. Check: • Check the functions of all switches and indicators • Power connection
Emergency stop switch	Turn the emergency stop switch to the release position and then press the start button. • Does the machine start up properly? Then press the emergency stop switch again. • Does the machine stop reliably?
Machine	Cleaning the machine • Blow off the machine with compressed air
Clean dust-collecting parts up to the connection to the vacuum cleaner	Unplug the power cord. Turn off the main switch. Remove any blockages.
Grinding tools and tool holders	Unplug the power cord. Turn off the main switch. Tilt the machine Grinding tools and tool holders Remove debris.
Battery	Check the battery capacity and charge if necessary
Dust cover	Check the dust cover for damage; replace if necessary

12.1.2 Monthly

Component	Task
Exhaust filter	Check for contamination
Wheels	Check that the wheels turn smoothly

12.1.3 Quarterly

Component	Task
Exhaust filter	Replace every 3 months G4-class filter mat in accordance with EN ISO 16890 Use
Transmission	Change oil

12.2 Cleaning

Cleaning interval:

- Daily after the workday Before each

cleaning:

- Unplug the power cord.
- Turn off the main switch.

Component	Action
Controls and displays	Clean the exterior with a brush if dirty. Have dirt in the control boxor controls .
Grinding disc cover	Remove the vacuum cleaner connection Shine a flashlight into the suction opening Remove dust from the suction opening.
Grinding discs	Tilt the machine. Loosen the grinding tools using a suitable tool. Remove dust or sanding residue with a brush or a putty knife.

Unplug the power cord from the fan opening on the control box	Unplug the power cord. Turn off the main switch. Clean the fan opening daily. Have the interior of the fan opening cleaned by qualified personnel .

External cleaning

- Clean external parts, e.g., housing components, with a slightly damp cloth.
- Do not use dripping wet cloths.
- Do not clean with a high-pressure washer.

12.3 Decommissioning

When the machine is taken out of service, its operational capability is:

- suspended indefinitely or
- suspended for an extended period,

so that maintenance work according to the maintenance schedule and other monitoring measures are not performed.

The following measures are required:

- Unplug the power cord and secure it to prevent it from being reconnected.
- Prevent unauthorized persons from restoring the power supply.
- Machines:
  - Move to the travel position.
  - Park on a horizontal and level surface.
  - Lower the control and operator console to the transport position.
  - Secure against collision with other machines or vehicles.
- Keep the operating instructions in a safe place.
- Prevent contamination from deposits.
- Perform regular visual inspections.

12.4 Storage

Storage conditions

The storage location must meet the following conditions:

- dry at room temperature
- protected from the elements
- sufficiently solid floor
- low dust levels.

If storage conditions are not met, components may corrode or age prematurely. The service life of the machine will be reduced.

Inspect stored items

Unforeseeable events may occur during storage. These include:

- Weather conditions
- Building damage
- Pest infestation
- Carelessness during other storage operations

Damage may occur to the machine.

- Check the storage location, the condition of the machine, and its position at regular intervals.

13Disposal

13.1 Dry grinding dust

Depending on the material being processed, the dry grinding dust produced during the grinding process may contain mineral, cement-based, metallic, or asbestos-containing components.

- **WARNING** Inhalation of grinding dust. Grinding dust may contain fine particles that are hazardous to health, e.g., quartz dust, metal oxides, and cement components. The grinding dust is respirable and can cause serious damage to the respiratory tract.

- Wear PPE:
  - FFP2-rated respirator,
  - Protective gloves,
  - Safety goggles,
  - Disposable protective suit, Type 5/6.

Dry grinding dust:

- Collect in closed containers or vacuum cleaner bags and dispose of.
- Do not allow to enter the environment, sewer system, or unpaved areas.
- Dispose of in accordance with applicable environmental, hazardous materials, and waste disposal regulations.

13.2 Wet grinding slurry

Wet grinding produces wet grinding slurry, which may contain mineral, cement-based, metallic, or asbestos-containing components depending on the material being processed.

- **CAUTION:** Wet grinding dust may be alkaline or chemically irritating. Skin, respiratory, and eye irritation are possible

  - Wear PPE:
    - FFP2-rated respirator,
    - protective gloves,
    - safety goggles.

Wet grinding dust:

- Collect in suitable, sealed, and chemically resistant containers.
- Do not allow this product to enter the sewer system, surface water, or soil.
- Dispose of in accordance with applicable environmental, hazardous materials, and waste disposal regulations.
- After drying, treat and dispose of the settled solids as dry grinding dust.

13.3 Sanding dust containing asbestos

When sanding old floors, adhesives, fillers, or coatings applied before 1995, there is a risk of asbestos-containing dust.

- **WARNING: Causes** serious damage to the respiratory tract and is carcinogenic. The inhaled dust is hazardous: Waste code 17 06 05* – “Construction materials containing asbestos.”

→ The provisions of TRGS 519 (Technical Regulation for Asbestos Demolition, Renovation, or Maintenance Work) must be strictly adhered to.

- Work involving materials containing asbestos must be performed by qualified personnel in accordance with TRGS 519, Annex 3 or 4, who possess the appropriate asbestos expertise.
- Pack the dust in dust-tight, labeled asbestos bags with a red warning label “A” or in big bags.
- Dispose of through authorized disposal facilities in accordance with the Hazardous Substances and Waste Regulations
  - KrWG – Act on the Promotion of the Circular Economy and the Ensuring of Environmentally Sound Waste Management
  - TRGS – Technical Rules for Hazardous Substances
  - AVV – Ordinance on the European Waste Catalogue.
- Do not allow moist grinding slurry containing asbestos to dry.

13.4 Other wastes

Designation	Disposal
Grinding tools	Legal requirements and manufacturer's instructions Observe.
Filter material	Depending on the dust being filtered
Battery in the control box	Dispose of in accordance with legal regulations. Do not dispose of in household waste.

Depends on duration of use and floor material

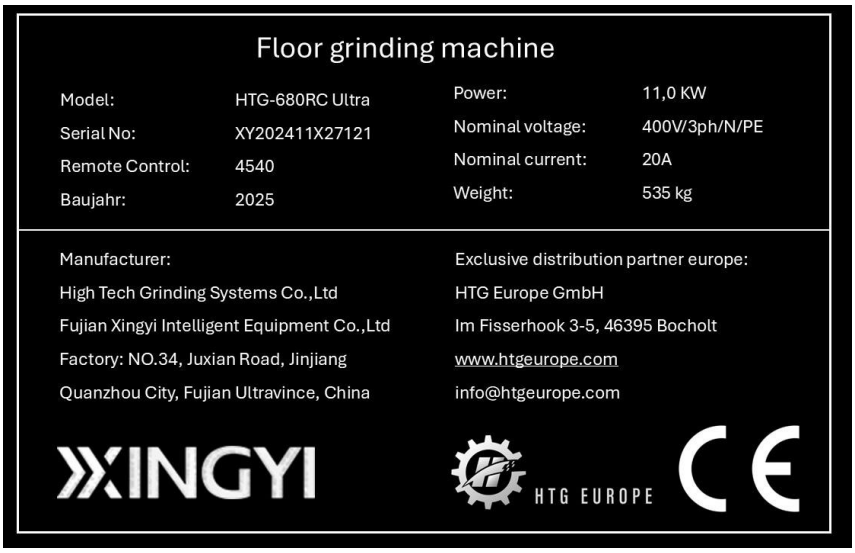
13.4.1 Disposal upon permanent decommissioning and dismantling

The machine contains components that pose a risk to the environment if disposed of improperly:

- Electrical and electronic components:
  - Cables
  - Switches
  - Controls
  - Lights
  - Displays
- Rubber on the tires.
- Plastics
- Follow the disposal instructions in section 3.3.2.

14 Documentation systems

14.1 Nameplate



Nameplate, example

The nameplate lists the machine's minimum specifications. These minimum specifications have been supplemented with connection data.

EC/EU Declaration of Conformity

in accordance with the Machinery Directive 2006/42/EC, Annex IIA

We hereby declare that the machine described below complies with the relevant basic safety and health requirements of the EC/EU directives in terms of its design and construction, as well as in the version marketed by us.

We hereby declare that the machine described below complies with the relevant basic safety and health requirements of the EC/EU directives in terms of its design and construction, as well as in the version marketed by us.

Description: *Description:*	**HIGH TECH GRINDING - 250 Ultra, CG250 Ultra, 250S Ultra, 460 Ultra, 550 Ultra, 550RC Ultra, 680 Ultra, 680RC Ultra, 680SP Ultra, 680GBD Ultra, 800SP Ultra, 820RC Ultra, 820GBD Ultra**

Complies with the following EC directives: *Complies with the following EC directives:*	**Machinery Directive 2006/42/EC** **EMC Directive 2014/30/EU**	*Machinery Directive 2006/42/EC* *EMC Directive 2014/30/EU*

In particular, it harmonized standards, standards, in particular: *Applied harmonized standards, in particular:*	**EN ISO 13849-1:2023**	Safety of machinery – Safety-related parts of control systems *Safety of machinery – Safety-related parts of control systems*
	EN ISO 12100:2011	Safety of machinery – General design principles – Risk assessment and risk reduction *Safety of machinery – General principles for design – Risk assessment and risk reduction*
	EN ISO 13857:2020	Safety distances to prevent upper and lower limbs from reaching hazardous areas *Safety distances to prevent upper and lower limbs from reaching hazardous areas* Safety of machinery – Minimum gaps to prevent crushing of body parts *Safety of machinery – Minimum gaps to prevent crushing of body parts*
	EN ISO 13854:2019	Safety of machinery – Prevention of unexpected start-up *Safety of machinery – Prevention of unexpected start-up* Safety of machinery – Electrical equipment of machines *Safety of machinery – Electrical equipment of machines*
	DIN EN ISO 14118:2018 EN	
	60204-1:2019	

If this machine is modified, this declaration loses its validity. The specific technical documentation in accordance with Annex VII, Part A has been prepared for the machine.

This declaration loses its validity if this machine is modified. The specific technical documentation in accordance with Annex VII, Part A has been prepared for the machine.

Manufacturer:
Manufacturer
High Tech Grinding Systems Co., Ltd
Fujian Xingyi Intelligent Equipment Co., Ltd
Factory: No. 34, Juxian Road, AnPing Development Area, Jinjiang, China

Exclusive distribution partner:
Exclusive distribution partner
HTG Europe GmbH
7 Fisserhook, 46395 Bocholt, Germany

Bocholt, December 4, 2025

HTG EUROPE GMBH
IM FISSERHOOK 7
46395 BOCHOLT | GERMANY

Peter Bußmann – HTG Europe GmbH - Managing Director


0
1
2
3
4
5
6
7
8
9
-W1
Yello
w-green
1.5- m
3x8+1*10 AWG
White
Red
Bla
ck
L3
Black
8 AWG
L2
White
8 AWG
L1
Red
8 AWG
48V+
Red
10 AWG
48V+ / 3.2
T
Black
S
8 AWG
White
8 AWG
R
Red
8 AWG
R
Red
8 AWG
T
Black
8 AWG
-QF1
/1.3
-QF1
/1.4
V4C
Schneider
Isolation
Switch
Main Pole
Module
1
3
5
7
2
4
6
8
-QF3
3P50A
Schneide
r
-QF4
2P4A
Schneider
48V+1
Red
10 AWG
48V+2
Red
10 AWG
48V+2 / 7.6
T1
Black
S1
8 AWG
White
R1
8 AWG
Red
8 AWG
R2
Red
16 AWG
T2
Black
16 AWG
-QF2
1P50A
L3
L2
L1
N
PE
-X1
5-pin industrial
connector
S
8 AWG
White
8 AWG
R
Red
8 AWG
R1
S1
T1
4.1
4.1
4.1
R2
T2
2.0
2.0
To the inverter power input terminal
To transformer power input
Electrical
Cabinet
inside
Connection
Location
Point
6.2
PE1
Transfo
rmer
frequen
cy
applian
ce
Connect
ion
ground
point
4.1
PE3
Transfo
rmer
voltage
device
Connect
ground
point
2.7
PE4
Grindin
g
Electric
machin
e
Connect
ground
point
4.5
PE5
swing
motion
rod
Connect
ground
point
5.3
PE6
Oper
Do
Surface
Plate
Connect
Land
dot
5.4
PE7
Fill
electri
c
device
Conne
ct
place
point
2.8
PE8
PE1
Yello
w-green
10 AWG
PE2
Yello
w-green
10 AWG
PE3
Yello
w-green
10 AWG
PE4
Yello
w-green
16 AWG
PE5
Yello
w-green
10 AWG
PE6
Yello
w-green
16 AWG
PE7
Yello
w-green
16 AWG
PE8
Yello
w-
gree
n AWG
-U1
Ground busbar
Note:
All cables must be CE-certified with
a cable length of 1.5 m
Inlet cable length: 1.75 m
Cable length from electrical cabinet to swing arm: 2.7
m; corrugated tube length: 75 cm Cable length from
ground wire to swing arm: 2.7 m
USB+2 and LED+2 cable length: 2.7 m
The ground terminal on the ground wire must use an OT terminal
Ground wire to control
pan

Drawing	Huang Xiaoming	Drawing Date	August 25, 2025	Date Modified	January 28, 2026
Proofread		Proofreading Date			
Review		Review Date			
Approved		Approval Date			

HTG-800SP-ULTRA Grinder - 3P 380V - 19kW - Huichuan MD520 (22kW) - V1.0.5

Current Page 1

380V AC Power Distribution

IEC_tpl001

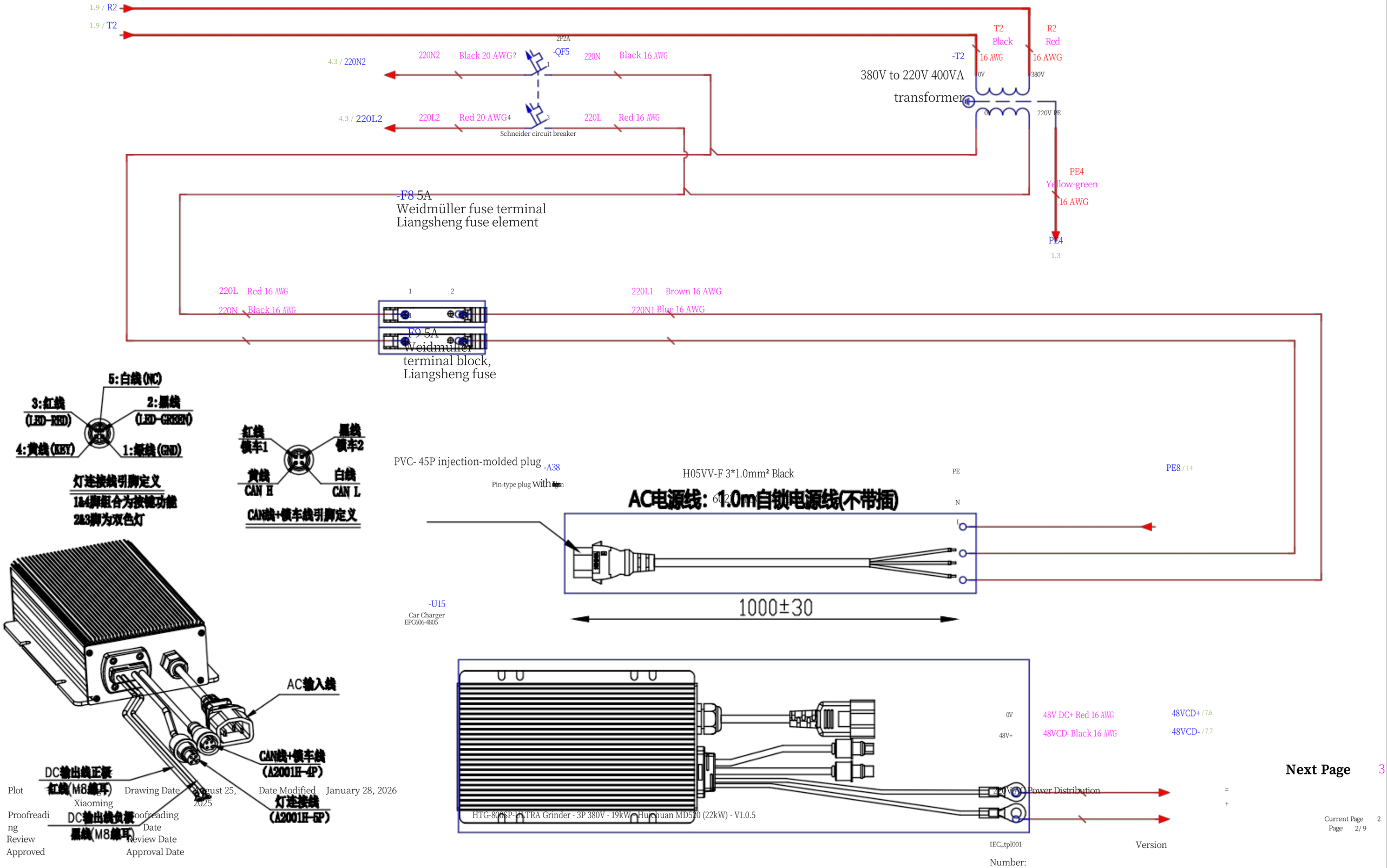
Number:

Version

Page 1/ 9

el: 3.2 m

Next page 2



Plot Drawing Date August 25, 2025 Date Modified January 28, 2026

Xiaoming

Proofreading

Proofreading Date

Review

Review Date

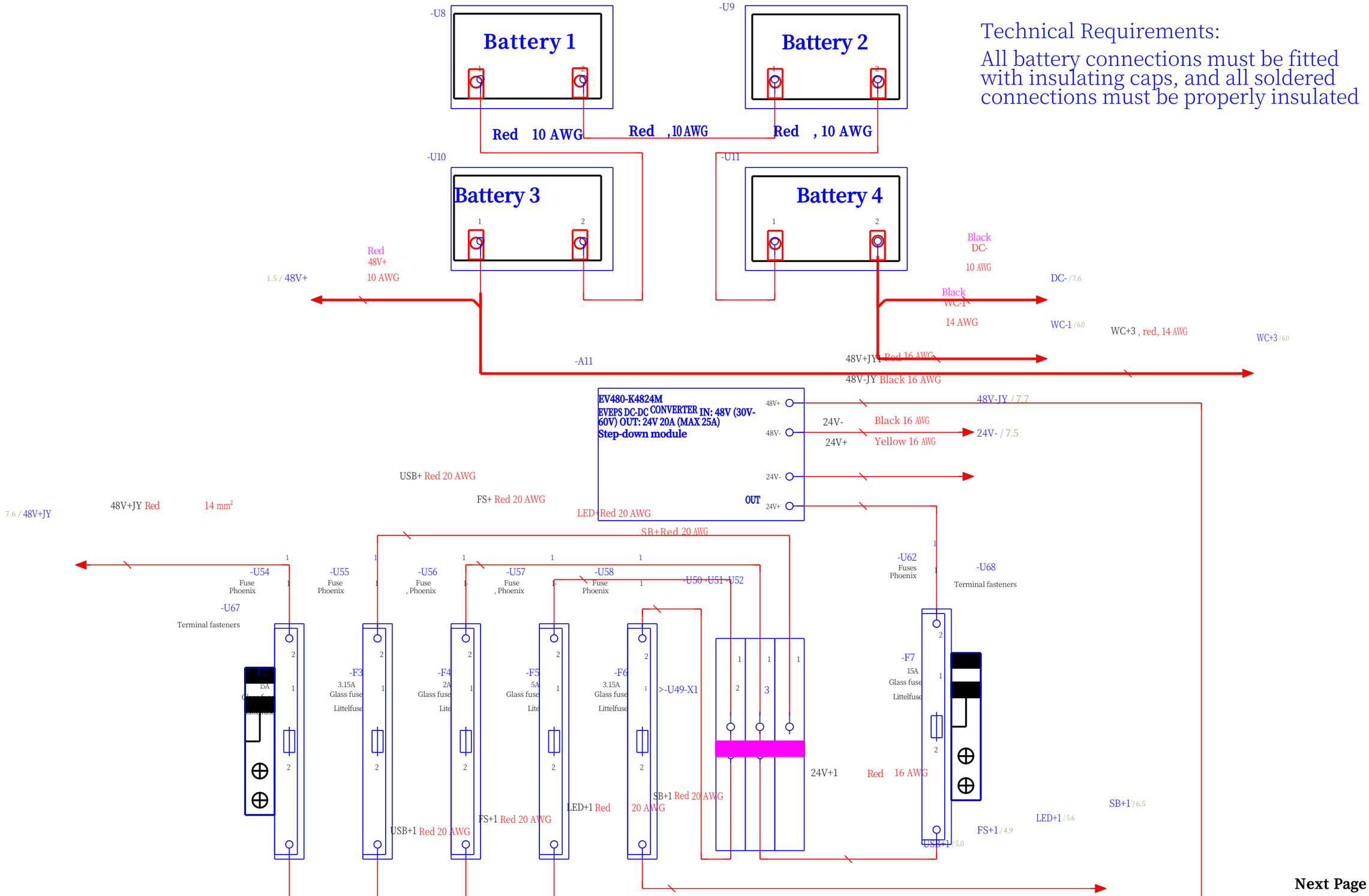
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Approval Date

Number:

Version

Next Page 3



Technical Requirements:

All battery connections must be fitted with insulating caps, and all soldered connections must be properly insulated

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Review		Review Date			
Approved		Approval Date			

48V and 24V Constant Current Power Distribution

HTG 800SP ULTRA Grinder - 3P 380V - 19kW - Huichuan MD520 (22kW) - V1.0.5

IEC_tpl001

Version

Number:

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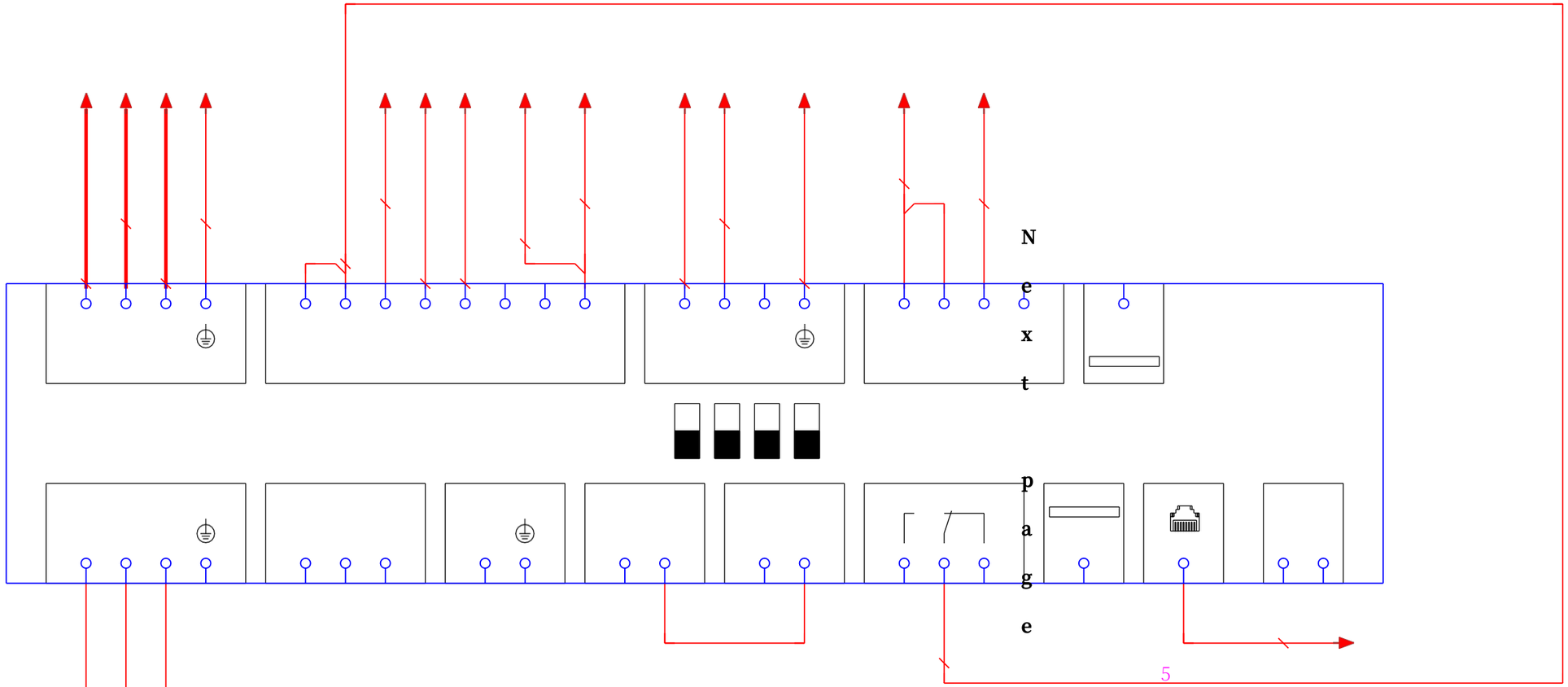
Current Page 3
Page 3/ 9

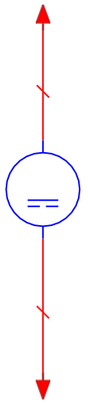
Note:
U-shaped cold-pressed bare terminal heads insulated with heat-shrink tubing

The 220L2 and 220N2 cables are 2.5 m long; the exposed section must be pro tected with a corrugated tube

1.3

PE5

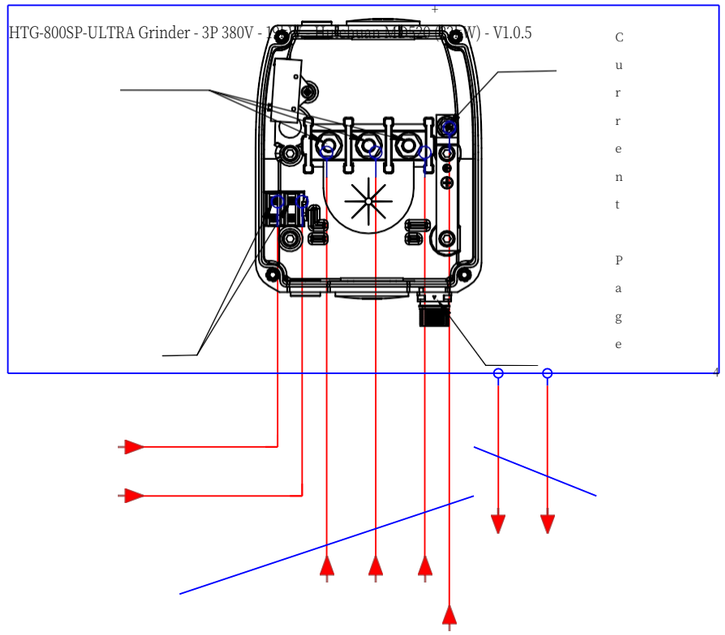




Drawing	Huang Xiaoming	Drawing Date	August 25, 2025	Date Modified	January 28, 2026
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Review		Review Date			
Approved		Approval Date			

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+



Variable frequency drive control circuit inside the electrical cabinet

IEC_tpl001 Number:

Version

0 1 2 3 4 5 6 7 8 9

-U48
USB port

20 AWG 20 AWG
Bla Bla
ck ck
-S5
COM COM
Grinding forward/reverse rotary switch

13 23
Schneider/5.
2
14 /2 5 4 2

15
AI1 Black 20 AWG
Z2 Z1
16
GND Black 20 AWG

Speed control potentiometer

14 +10V black 20 AWG
-R1

Schneider safety switch
-S9 XCSPA791
6
/5.0 -W3
2.5 m
16x20 AWG

12 11 A6 Bla 20 AWG
ck

To terminal block 2 on the back of the electrical box 7.3 / A6

7
-S9 JT Black 20 AWG
21 22
4.5 / JT
/5.7

/5.0 -W3
2.7 m
16x20 AWG
Emergency stop switch
-S6

5
4.4 / JT2 JT2 Black 20 AWG

+ -
/5.7
/5.8
/5.8
/5.8
-W3
2.7 m
16x20 AWG

X2
9 Black
20 AWG
X1 COM
Black 4 Black
8 20 AWG 20 AWG

USB+1 USB-
Red Black
20 AWG 20 AWG 13

USB+1 USB-
3.6 7.5

AI1 / 4.4 to inverter AI1 connection point

+10V / 4.3 to inverter +10V connection point

GND / 4.4 to inverter GND connection point

A4 / 4.3 to inverter COM connection point

X2 / 4.2 to inverter X2 connection point

X1 / 4.2 to inverter X1 connection point

JT1Black 20 AWG
A6-1 Black 20 AWG

12-S611
22 ApplicNel 21
/5.8
/5.8

2-position selector switch
-S7
2 /5.0 -W3

7.4 / LED+2
LED+2 Black 20 AWG
Black 2.7m
14 13
16x20 AWG Schneider

3.7 / LED+1
LED+1 Red 20 AWG

-U13
Inverter controller

-W3
/5.0 2.7 m
16x20 AWG

To terminal block 6 on the back of the electrical box 7.4 / A12
12
A12 Black 20 AWG

Travel speed control potentiometer
-R2
10
A10 Black 20 AWG
Z2 Z1

Connect to terminal block 4 on the back of the electrical box 7.3 / A10

To terminal 5 on the back of the electrical box 7.3 / A11
A11 Black 20 AWG
11
A11
A2 BK 20 AWG

1.4 1.4
PE6 PE7

CZQ / 4.7

PE6 PE7
Yellow-green Yellow-green
16 AWG 16 AWG

-U14
Toggle switch

To terminal block 1 on the back of the electrical box 7.3 / A3
A3 3 Black 20 AWG

-U71
Swing arm ground stud
Control panel ground stud

To terminal block 3 on the back of the electrical box 7.3 / A1
A1 1 Black 20 AWG

Technical Specifications:

Drawing | Huang Xiaoming | Drawing Date | August 25, 2025 | Date Modified | January 28, 2026

Review | Date of Review | Reviewed by | Review Date

Approved | Date of Approval

1. Toggle switches and USB terminals must be insulated with heat-shrink tubing

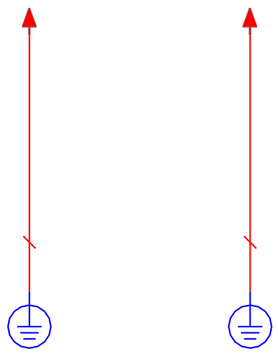
HTG-800SP-ULTRA Grinder-3P380V-19KW-Yukawa MD520 (22KW)-V1.0.5

2. Insulate the exposed terminals of the U-shaped cold-pressed connectors with heat-shrink tubing

Joystick Control Circuit

Next page 6

IEC_tpl001 Version number:



0 1 2 3 4 5 6 7 8 9

-U7

External charging port

\- +

Brushless controller fault indicator

-H3

x1 x2

-U12

Car Charger Indicator Light

To charger

-U2

Digital timer

4 3 2 1

Two-speed pump switch

-S8

DL+ Red 20 AWG

Red Green Orange

Restroom

\+

Red

14 AWG

Female

6.3mm spring-loaded terminal

Male

Toilet

White

14 AWG2

6.3mm spring-loaded terminal

Female

Male

WC+1

Red

14 AWG

-F1

10A

1 Waterproof fuse

WC+2

Red

Male 14 AWG

6.3 mm spring-loaded terminal

F

WC+3

Red

14 AWG

WC-1

Black

14 AWG

ERR1+

Blue

20 AWG

ERR1+

7.5

ERR1-

Black

20 AWG

ERR1-

7.5

SB+1

Red

20 AWG

SB+2

Red

20 AWG

DL-

Black

20 AWG

WC-1

3.7

WC+3

3.8

1.2

PE1

SB+1

3.8

SB+2

7.4

DL+

7.6

DL-

7.7

PE1

Yello w-green

10 AWG

PE1

Yello w-green

10 AWG

Drawing	Huang Xiaoming	Drawing Date	August 25, 2025	Date Modified	January 28, 2026
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Revi				ew Date	

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HTG-800SP-ULTRA Grinder-3P380V-19KW-Huichuan MD520 (22KW)-V1.0.5

-U71

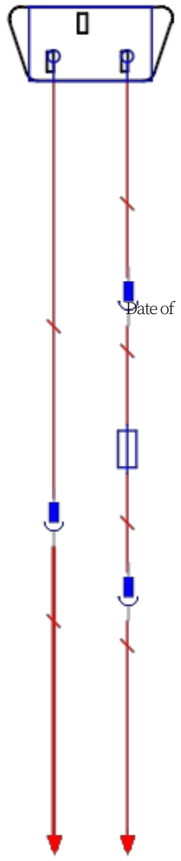
Electrical cabinet door grounding stud

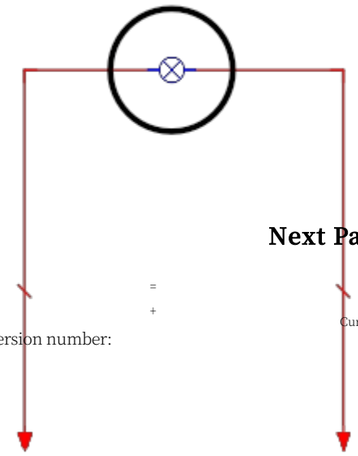
-U72

Grounding stud inside the control cabinet

Electrical cabinet door circuit

IEC_tpl001





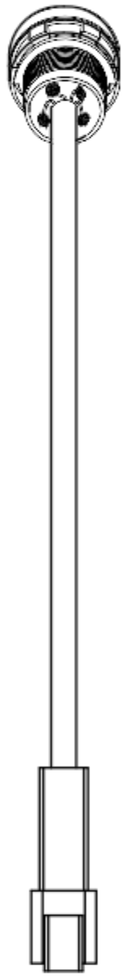
Next Page 7

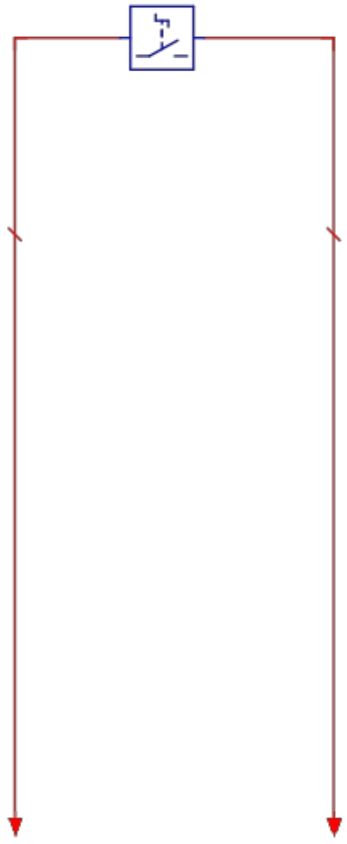
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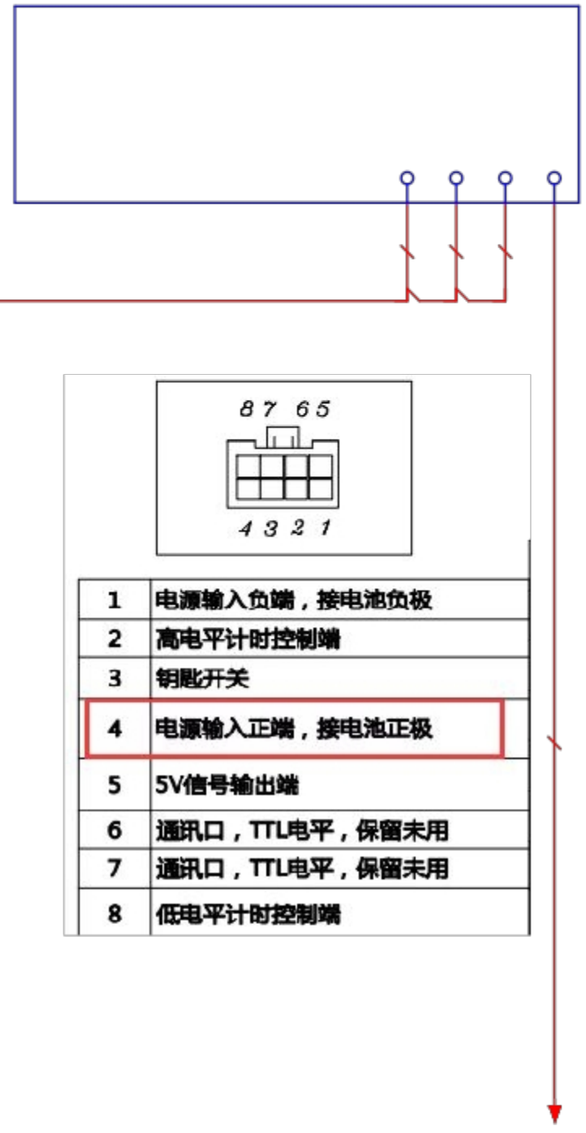
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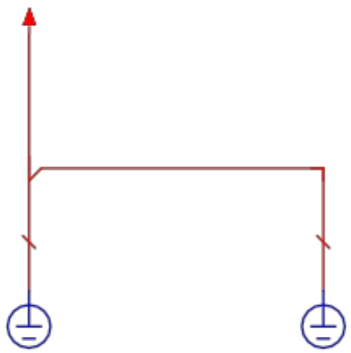
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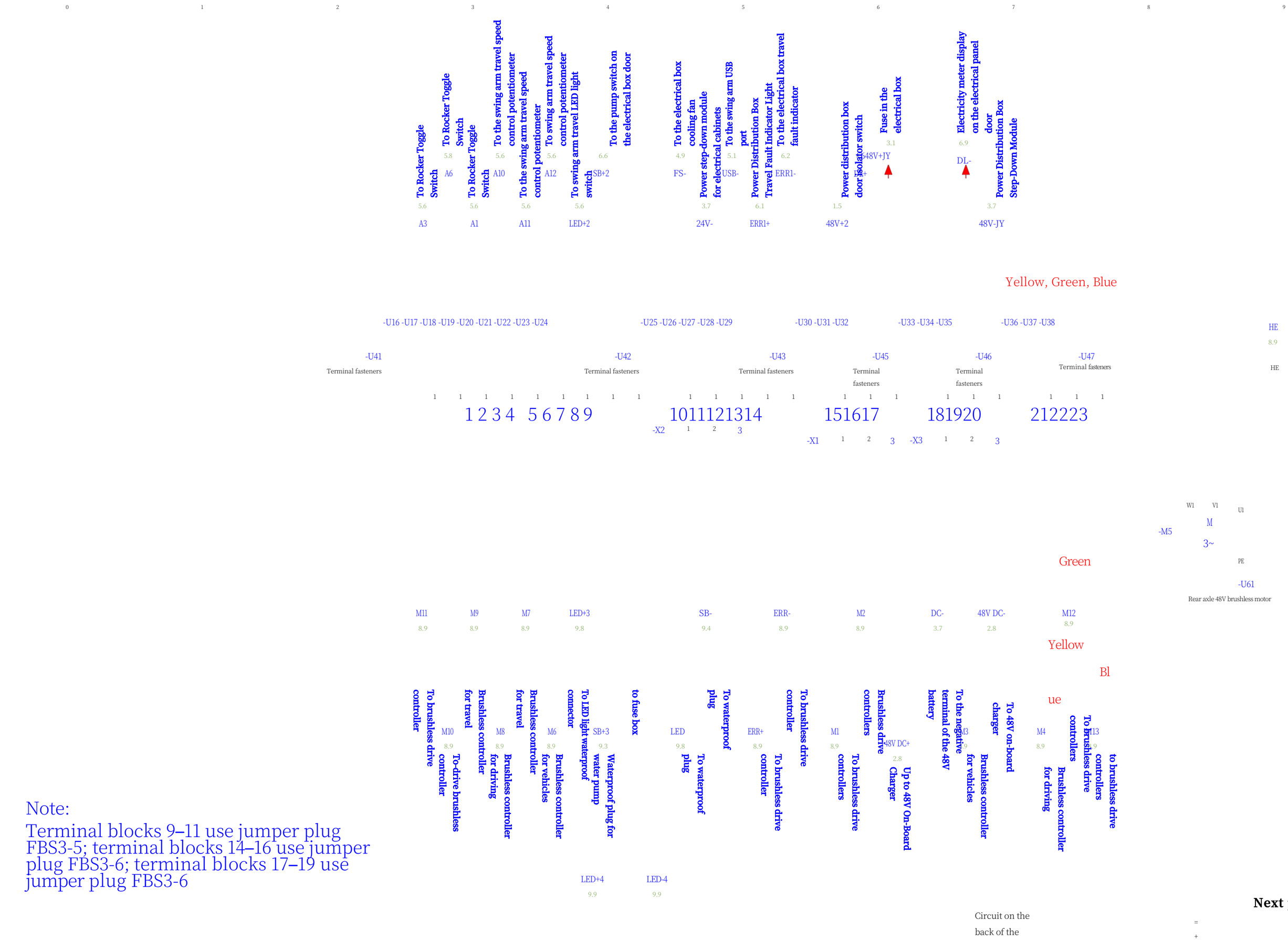




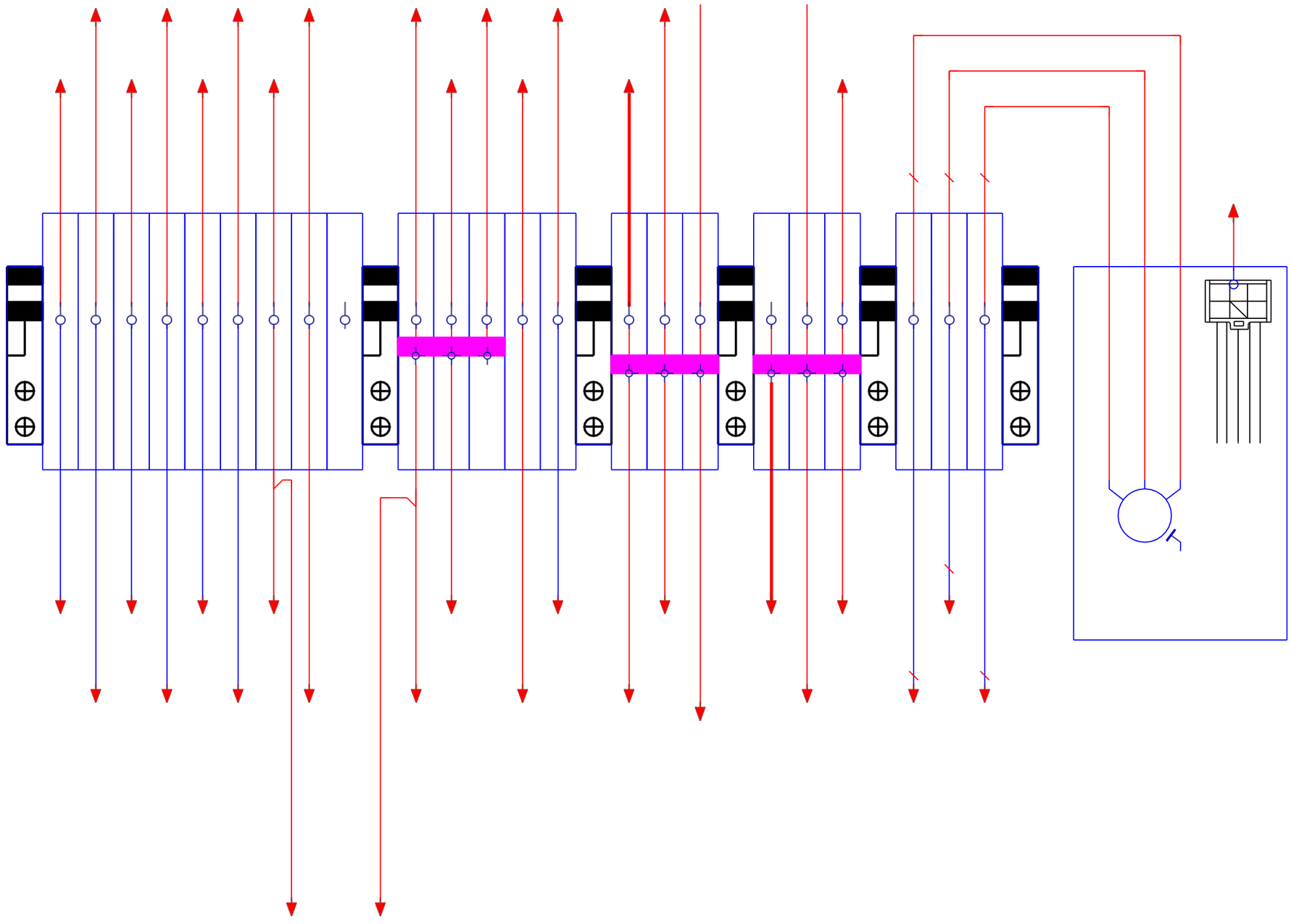


1	电源输入负端，接电池负极
2	高电平计时控制端
3	钥匙开关
4	电源输入正端，接电池正极
5	5V信号输出端
6	通讯口，TTL电平，保留未用
7	通讯口，TTL电平，保留未用
8	低电平计时控制端




0 1 2 3 4 5 6 7 8 9
To Rocker Toggle Switch
5.6
A3
To Rocker Toggle Switch
5.8
A6
To Rocker Toggle Switch
5.6
A1
To the swing arm travel speed control potentiometer
5.6
A10
To the swing arm travel speed control potentiometer
5.6
A11
To swing arm travel speed control potentiometer
5.6
A12
To swing arm travel LED light switch
5.6
LED+2
To the pump switch on the electrical box door
6.6
SB+2
To the electrical box cooling fan
4.9
FS-
Power step-down module for electrical cabinets
3.7
24V-
To the swing arm USB port
5.1
USB-
Power Distribution Box
6.1
ERR1+
Travel Fault Indicator Light
To the electrical box travel fault indicator
6.2
ERR1-
Power distribution box door isolator switch
1.5
48V+2
Fuse in the electrical box
3.1
48V+JY
Electricity meter display on the electrical panel door
6.9
DL-
Power Distribution Box Step-Down Module
3.7
48V-JY
Yellow, Green, Blue
-U16 -U17 -U18 -U19 -U20 -U21 -U22 -U23 -U24
-U25 -U26 -U27 -U28 -U29
-U30 -U31 -U32
-U33 -U34 -U35
-U36 -U37 -U38
-U41
Terminal fasteners
-U42
Terminal fasteners
-U43
Terminal fasteners
-U45
Terminal fasteners
-U46
Terminal fasteners
-U47
Terminal fasteners
1 1 1 1 1 1 1 1 1
1 2 3 4 5 6 7 8 9
1 1 1 1 1 1
10 11 12 13 14
-X2
1 2 3
1 1 1
15 16 17
-X1
1 2 3
1 1 1
18 19 20
-X3
1 2 3
1 1 1
21 22 23
HE
8.9
HE
M11
8.9
To Rocker Toggle Switch
5.6
A3
M10
8.9
To-drive brushless controller
To brushless drive controller
5.6
A2
M9
8.9
To brushless drive controller
5.6
A1
M8
8.9
Brushless controller for driving
Brushless controller for travel
5.6
A4
M7
8.9
Brushless controller for travel
5.6
A11
M6
8.9
Brushless controller for vehicles
Brushless controller connector
5.6
A5
LED+3
9.8
SB+3
9.3
To LED light waterproof water pump
Waterproof plug for water pump
5.6
LED+2
LED+4
9.9
LED-4
9.9
to fuse box
SB-
9.4
LED
9.8
To waterproof plug
To waterproof plug
5.6
SB+1
ERR-
8.9
ERR+
8.9
To brushless drive controller
To brushless drive controller
5.6
A7
M2
8.9
M1
8.9
To brushless drive controllers
Brushless drive controllers
5.6
A8
48V DC+
2.8
Up to 48V On-Board Charger
DC-
3.7
To the negative terminal of the 48V battery
3.9
A13
48V DC-
2.8
Brushless controller for vehicles
To 48V on-board charger
6.1
ERR1+
M12
8.9
M4
8.9
Brushless controller for driving
To brushless drive controllers
5.6
A9
M13
8.9
To brushless drive controllers
5.6
A12
Green
Yellow
Blue
W1 V1 U1
M
3~
PE
-M5
-U61
Rear axle 48V brushless motor
Note:
Terminal blocks 9–11 use jumper plug FBS3-5; terminal blocks 14–16 use jumper plug FBS3-6; terminal blocks 17–19 use jumper plug FBS3-6
Circuit on the back of the electrical box
Next page 8

Drawing	Huang Xiaoming	Drawing Date	August 25, 2025	Date Modified	January 28, 2026
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Review		Review Date			
Approved		Approval Date			



-A5

Brushless controller

Parking line

Red

DC+

Black

DC-

Yellow

U

Green

V

Blue

W

Orange

1

M2 / 7.6

M3 / 7.7

M4 / 7.7

M12 / 7.7

M13 / 7.8

M1 / 7.6

Hall wire

HE

HE / 7.9

Indicato

r light

Red-White

ERR+

Black

ERR-

Black

M6

ERR+

Red

0.5 mm²

ERR-

Black

0.5 mm²

ERR+ / 7.5

ERR- / 7.5

M6 / 7.4

Speed

control

wire

Green and

white

M7

Pink

M8

Light Blue

M9

Black

M10

M7 / 7.3

M8 / 7.3

M9 / 7.3

M10 / 7.3

M11 / 7.3

Forward/Rev

erse Line

Yellow

and black

M11

White

1

White

1

Speed

Selection Line

Drawing	Huang Xiaoming	Drawing Date	August 25, 2025	Date Modified	January 28, 2026
Review	Review date	Review Date			
Approval	Date of approval				

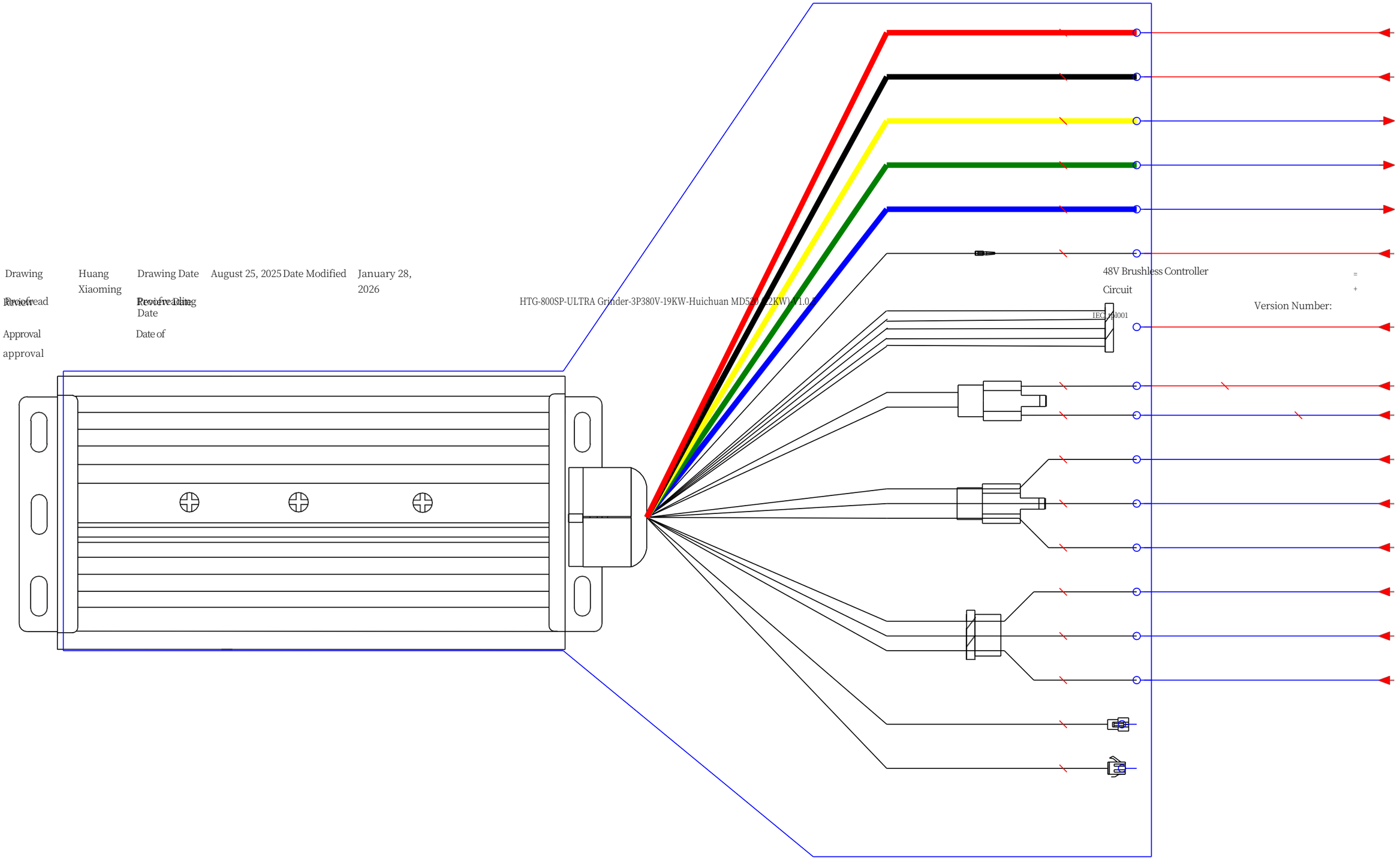
HTG-800SP-ULTRA Grinder-3P380V-19KW-Huichuan MD520-22KW V1.0

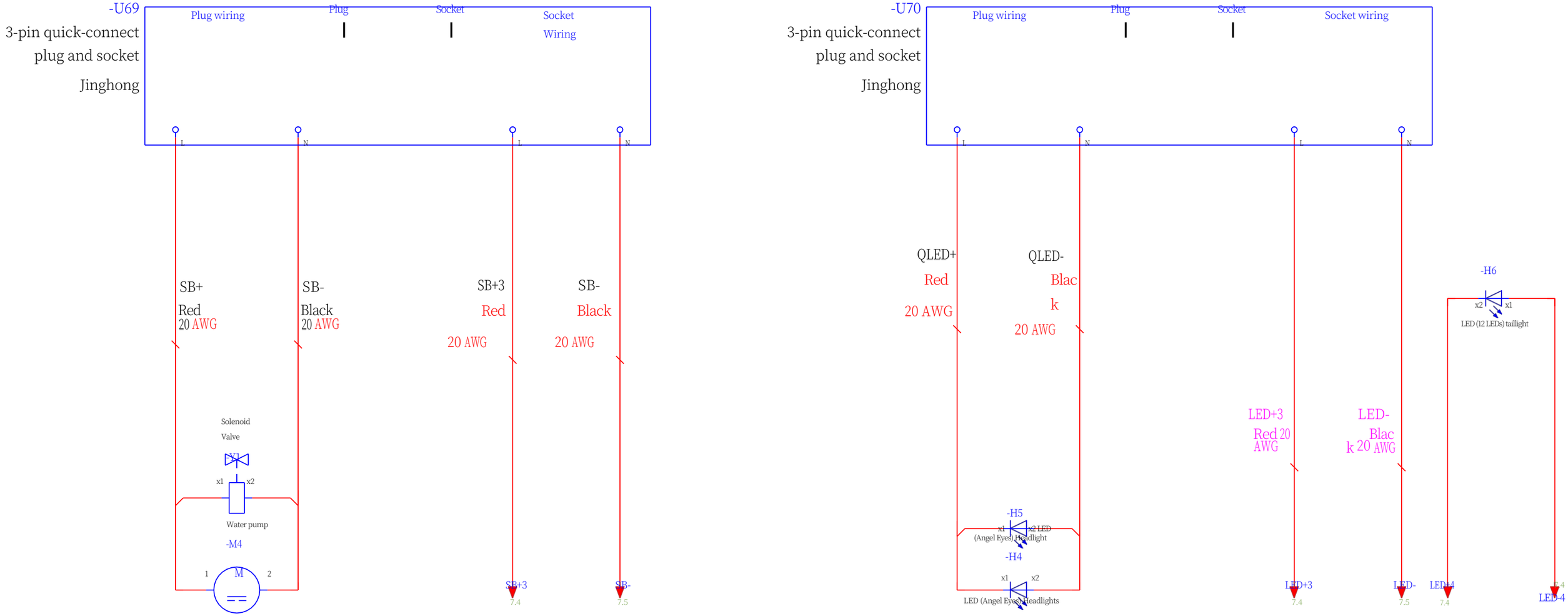
48V Brushless Controller Circuit

Version Number:

IEC 61001

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Next Page

Drawing	Huang Xiaoming	Drawing Date	August 25, 2025	Date Modified	January 28, 2026	Water Pump and LED Light Control Circuit	=		
Review		Review Date				HTG-800SP-ULTRA Grinder-3P380V-19KW-Huichuan MD520 (22KW)-V1.0.5	+	Version Number:	
Approval		Date of approval				IEC_tpl001		Current Page	9
								Page	9/9

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Notes

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	Revision 1 March 30, 2026

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