HTG-460 Ultra



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Change index			
Date	Rev	Description of Change	Employee
11/28	1	Operating instructions created	PB

This operating manual was created by HTG Europe GmbH. It was compiled 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 are also grateful for any comments and suggestions.

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These operating instructions must be kept handy near the machine.

It must be included when the machine is sold.

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2 Notes on reading

2.1 Users of the operating instructions

Chapter	Operators	Qualified	Operators	Support staff
Safety	x	x	x	x
Product description		x	x	
Transport		x		
Assembly		x		
Commissioning		x		
Operation and use	x	x	x	x
Troubleshooting		x	x	
Maintenance	x	x		
Decommissioning		x		

→ For further information, please contact your local dealer.

2.2 Abbreviations, synonyms, symbols

Abbreviation Synonym	Meaning
PPE	Personal protective equipment
Machine	Floor grinding machine HIGH TECH GRINDING 460 Ultra

Symbol	Meaning
→	Instruction to perform an action or read a section in this document
●	List, main points
○	List, sub-points
🗎	Request to read further documents
Italics	Designation of a document, a key, a button, a switch
	This text provides additional information that is necessary for understanding .

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 these hazards.

You will find this information mainly:

- As safety instructions and pictograms in Chapter 3 Safety
- As warnings of imminent danger
- As pictograms and warning text in Chapter 3 Markings on the machine and packaging

2.3.2 Chapter Safety

This chapter contains general safety-related information on avoiding hazards associated with the machine. The information is intended to promote awareness of safe behavior. The aim is to provide a basis for training and instruction.

Compliance with the safety instructions protects personnel, living beings, and the environment from harm.

The chapter uses the following safety symbols:

Safety warning	Meaning
	Warning of dangerous electrical voltage

2.3.3 Warning notices

Meaning

This operating manual contains warnings in several chapters. A warning alerts you to an imminent danger. It must be understood in connection with the situation in which the warning is given. The aim is to prevent accidents and damage during an ongoing action.

Signal words

Signal word	Risk level hazard	Meaning
⚠ **DANGER**	high	Death or serious bodily injury may occur if the hazard is not avoided is avoided.
⚠ **WARNING**	Medium	Death or serious injury may occur if the hazard is not is avoided.
⚠ **CAUTION**	Low	Minor or moderate injury may

		is avoided.
WARNING	-	Damage with significant financial consequences to the product or other property is possible.

Presentation

Warnings are displayed as follows in the operating instructions:

Variant 1:

➢ **DANGER** This warning text identifies the source of the hazard and the area of effect. This warning text describes the consequences.

→ This instruction specifies the remedy to avoid the hazard.

The warning notice:

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

Variant 2:

1. Step 1
   DANGER This warning text identifies the source of the hazard and the area of effectiveness. This warning text identifies the consequences.
2. Step 2 This instruction specifies the remedy to avoid the hazard.
3. Step

The warning notice:

- appears before an action involving immediate danger.
- applies to this action.

2.4 External documents

In addition to this operating manual, external documentation from suppliers must also be observed.

The external documents contain safety-related information. They are not repeated in this original operating manual.
If the external documents revealed any hazards for the machine as a whole, these were 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 craft workshops and similar companies.

The machine is exclusively intended for:

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

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

The machine is used for:

- surface preparation,
- smoothing, or
- polishing

in industrial, commercial, and construction applications.

The machine may only be operated:

- With suitable tools and original HTG accessories,
- In technically perfect condition.

The machine is used:

- Inside buildings
- in dry outdoor areas - When used outdoors, it must be ensured that the machine is protected from moisture, wetness, and direct weather conditions.

The machine is built according to the state of the art and recognized safety regulations.

Nevertheless, 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 machines and other property.

Proper use includes observing these operating instructions and the operating instructions of the suppliers, as well as complying with the inspection and maintenance conditions of the suppliers.

The manufacturer is not liable for non-compliance and any resulting damage. The risk is borne by the operator.

If malfunctions occur during operation:

- ➢ Switch off the machine immediately.
- ➢ Inform 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 end-user sector.
- Storing and parking the machine in conditions that allow access and use of the machine by unauthorized persons and persons under the age of 18.
- Use:
  - in rain, lightning, thick fog, strong wind, or other unfavorable conditions.
  - When electronic components have become wet.
  - near explosive or flammable materials or vapors, dust, solvents, thinners, or other combustible objects.
- Continuous operation for more than 5 hours at a time.

  The actual operating time depends on the conditions of use and may be shorter. In the event of:
  - Signs of overload,
  - error messages
  - ➢ Switch off immediately and allow to cool down.
- operation without covers,
- the mechanical or electrical bypassing of 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 manipulations,
- use for processing materials other than those intended. These include:
  - PVC,
  - linoleum,
  - vinyl,
  - rubber,
  - carpeting,
  - rubber,
  - cork,
  - Tiles,
  - Metal floors,
  - Loose, damaged, or hollow floors.
- Failure to follow the instructions and prescribed operating, maintenance, and servicing conditions.
- Failure to comply with the regulations and provisions in the country of use and the legal provisions and accident prevention regulations when handling the machine.
- Operation of the machine outside the technical data.

3.2 Legal regulations

3.2.1 Modifications

Modifications can create new hazards on the machine. Serious personal injury is possible.

- Do not make any changes to the machine.
- Do not operate machines that have been modified by third parties.

Only original spare parts or spare parts that meet the specifications of the original spare parts may be used for maintenance work. The use of other parts may result in a loss of liability on the part of the manufacturer. Liability is then transferred to the converter or operator.

3.2.2 Applicable guidelines

- See EC Declaration of Conformity.

3.2.3 Sale in the non-European economic area

The manufacturer accepts no liability for the sale of the machine in non-European economic areas. The machine is designed, built, and documented exclusively for the European economic area.

When reselling the machine outside the European Economic Area, the seller must comply with all legal requirements of the respective economic area/country.

3.3 Safety instructions

The safety instructions are sorted according to their area of application.

3.3.1 According to the source of the hazard

Applies to the entire machine in all phases of its life cycle

Energy



Electrical energy

The machine is connected to a supply voltage of 230 V. Touching conductive parts will result in a fatal electric shock.

- Repairs may only be carried out by qualified personnel.
- Before working on the machine, disconnect the power plug and secure it against being reconnected.
- Check the connection cable and power plug for damage before connecting.
- Replace damaged cables immediately.
- Lock the switch box after completing work and remove the key.

Substances, materials

Dust

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

- ➢ Wear respiratory protection:
  - Respirator with FFP2 filter.
  - FFP3 for dust containing quartz or cement.
- ➢ Check the operator's health regularly.

Noise

Entire machine

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

- ➢ Hearing protection must be worn.

Fire, combustion, explosion

Overheating

The switch box is equipped with a ventilation grille. The ventilation is designed so that overheating inside the switch box is not possible. If ventilation grilles are closed or dirty, heat will build up in the switch box. Cable sheathing may melt. Fires may occur.
Smoke inhalation and burns are possible.

- ➢ Keep ventilation grilles open and clean.
- ➢ Replace defective ventilation equipment 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 earlier than expected. If aging, wear, and defective parts go unnoticed, serious injuries may occur.

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

Labeling of operating and display elements

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

- ➢ Keep operating and adjustment elements as well as labels and pictograms clean.
- ➢ Replace damaged labels and pictograms.

Statics

Slopes

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

See also chapter Sloping ground

3.3.2 After the life cycle

Applies 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 generated during operation. 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 attachment points.
- Use a crane or forklift to place the machine on a pallet or skid frame and secure it against 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 truck under the tool holders.

PPE

The machine must be attached to lifting gear for transport. Hands can be crushed or scraped during these operations. Suspended loads can swing. Carelessness can result in the head being struck. Loads can fall or be set down inaccurately. Serious injuries to the feet and toes are possible.

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

Lifting gear and transport vehicles

The machine weighs 219 kg when empty. Undersized lifting gear or the use of unsuitable attachment points can cause loads to tip over or lifting gear to tear.

- Use lifting gear of sufficient size.
- Secure lifting gear to the attachment points and lift.

Transport work may only be carried out by qualified persons in compliance with the safety instructions.

- Comply with regulations for securing loads during transport.
- During transport on open factory premises, provide an accompanying person for safety.

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

- Only use tested and approved lifting equipment:
  - Shackles in accordance with DIN 82101
  - Lifting chains in accordance with DIN EN 818-2, grade 8
  - Sling ropes in accordance with DIN EN 13414-1
  - Textile lifting gear (round slings) in accordance with DIN EN 1492

Loading transport vehicles

Transport vehicles that are too small can be overloaded by the load. The machine parts may protrude beyond the outer dimensions of the transport vehicle. Functionality and roadworthiness may be impaired. The impairments may not be immediately apparent and may only occur during transport. The loads may slip due to driving movements.

- Ensure that the transport vehicle is sufficiently dimensioned for the weight and dimensions.
- Secure loads on the transport vehicle using suitable means.
- Protect the machine from moisture.

Assembly, disassembly

Storing tools and components

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

- Provide sufficient assembly and storage space.
- Do not store tools and components in traffic areas or in places where visibility is poor.
- Tidy up tools after finishing work.

Commissioning

Before initial commissioning

- Always use the machine with the corresponding operating instructions.
- Read the operating instructions, including the safety-related information, carefully before initial commissioning.
  Your knowledge will enable you to recognize dangerous situations and protect yourself and others.
- Only start up the machine once you have read and understood the contents of the operating instructions.
- Train qualified personnel.
- Use qualified specialists.
- Only work 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 care of safety and that hazards can be avoided during operation.

Operation, use

Persons in the danger zone

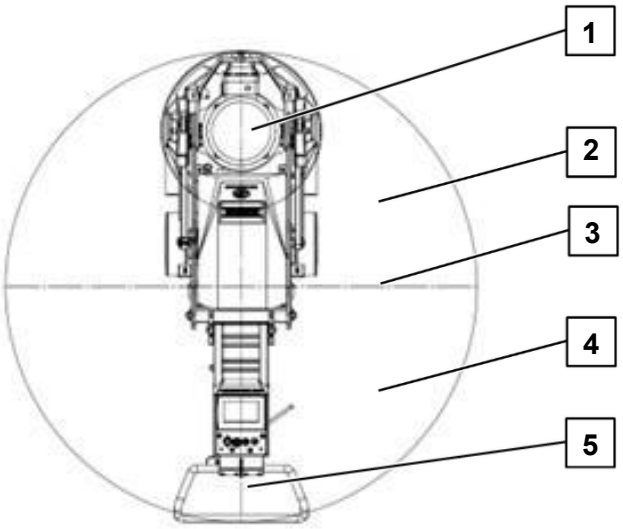


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Fig. 1 Danger zones

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

Before switching on the machine, instruct third parties to leave the danger zones.

Operator:

- Move carefully in the danger zone for the operator.
- When using the remote control, keep machines and dangerous objects in your field of vision.

Operating the machine may pose a hazard to bystanders, e.g., due to noise, dust, and the guided movements of the machine.

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

Presence of the operator

The rotational movements of the tools can cause the machine to perform uncontrolled movements.

- Hold the machine by the handle during operation.

Grinding over the connection cable

The connection cable runs across the floor. The connection cable may be damaged if driven over. There is a risk of electric shock.

- When moving forward, guide the connection cable behind the machine and to the side of the operator.
- Guide the connection cable by hand when moving backwards. Place the connection cable outside the working area of the machine.

If the connection cable is run over:

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

Maintenance

Replacing components

The components of the machine are matched to each other in terms of their parameters and design. Replacing them with unsuitable components can lead to malfunctions and hazards for people working on the machine.

- Only use original spare parts or spare parts that meet the specifications of the original spare parts.

Storage

Access by unauthorized persons

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

- Store the machine in such a way that unauthorized user groups cannot access it, e.g., locked in a room.

Disposal

Avoid environmental damage

The machine contains components or substances that may harm the environment if disposed of improperly.

- To avoid environmental damage, proceed as follows. Materials and components:
  - Sort,
  -  Do not throw parts into the trash can.
  - Dispose of in accordance with legal requirements.
  - Have them collected and recycled by a specialized company. Observe the safety data

sheets.

3.3.3 Depending on the location of the hazard

Applies to special machine parts in all life phases

Safety devices

Regular inspection

The protective devices are designed in such a way that, when used as intended, the risk of injury is reduced to a residual risk. If protective devices are not functional, serious injuries may occur.

- Do not tamper with or modify protective devices.
- Always operate the machine with functional protective devices.
- Only remove protective devices 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 can only be accessed with a password.

- Only allow persons with password access to change the 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 in accordance with the latest technology to reduce vibration 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 reuse.
  - Inform the authorized dealer.

    The machine may only be inspected and repaired by maintenance personnel

approved by the dealer.

3.4 Operator

The operator:
...fulfills labor law obligations with regard to the operation of the machine.
• operates the machine safely and without tampering in all phases of its life cycle, • ensures that personnel read and understand the operating instructions, • instructs personnel before they start work for the first time, • provides the operating instructions in paper form at the machine, • keeps the operating instructions and external documents in a legible condition. • Provides fire extinguishers and first aid kits
...performs personnel organization tasks.
• Assigns persons to a user group • defines access authorizations for the machine, control panel, control system, and program • instructs the user groups.
...instructs users on how to behave in the event of accidents and malfunctions. The content of the instruction includes, for example:
• the locations of first aid stations, • the location and route of escape routes, • how to behave in emergencies and regular practice of the correct behavior. ➢ After administering first aid, seek professional medical treatment immediately.

3.5 Personnel

3.5.1 Description of user groups

Specialist personnel
...are specialists who, as a result of their vocational training, professional experience, and recent relevant professional activity or personal characteristics, are able to perform specialist work on the machine. They are commissioned and instructed by the operator.
• has successfully completed and is certified in specialized training, has knowledge and experience in working with machines, • can assess the work task and carry it out independently, • has knowledge of the applicable standards or the ability to acquire this knowledge, • has knowledge of the hazards occurring in his field of expertise and knowledge of how to avoid and eliminate them.
...is instructed by the respective dealer before commissioning. The following qualified personnel are required to operate the machine:

• for work on the electrical equipment for setup and testing work • for maintenance and repair for troubleshooting • for transport, assembly, and disassembly work
Operators
...are persons who work with the machine during grinding operations.
• can read, • understand the symbols and instructions affixed to the machine, can carry out the activities independently and in accordance with the specifications after instruction and training, • recognize the hazards after instruction and can react in accordance with the specifications.
Support staff
...are persons who perform work in the area of the machine that is not related to its operation. This includes cleaning, for example. Auxiliary personnel are not permitted to operate the machine.
• can understand instructions, • can implement instructions during their work, • recognizes the dangers after receiving instruction and can react according to the specifications.
Trainees
...are persons who are undergoing specialist training. They may operate the machine under the supervision of specialist personnel or perform work tasks within their area of expertise.
• can understand instructions, • can implement instructions during their work, • recognize hazards after receiving instruction and can respond appropriately in accordance with the guidelines.
External company personnel
...are external employees who have the same qualifications as the above employee groups under the following circumstances:
• Before work begins, training and safety instructions must be provided by qualified persons and documented in writing. • The work of external company personnel must be coordinated with internal employees to avoid mutual hazards. • Before work begins, a direct contact person in the form of an internal employee who is informed about the work processes and work locations must be designated.

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 for training purposes in the presence of a trainer.

Health

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

Users must be able to recognize the visual danger signals.

- Remove unauthorized persons from the machine.

3.5.3 Personal protective equipment - PPE

The personal protective equipment for users includes:

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

4 Machine description

4.1 Technical data

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

4.1.1 Scope of delivery

The scope of delivery includes:

- one machine with cable and connector plug,
- dust protection tape,
- Integrated tool holder,
- key for switch box.

Not included in the scope of delivery:

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

4.1.2 Machine data

Designation	Value
Drive motor speed	350 — 1,950 rpm
Number of tool carriers	3
Suction connection	Easy Connect 50 mm

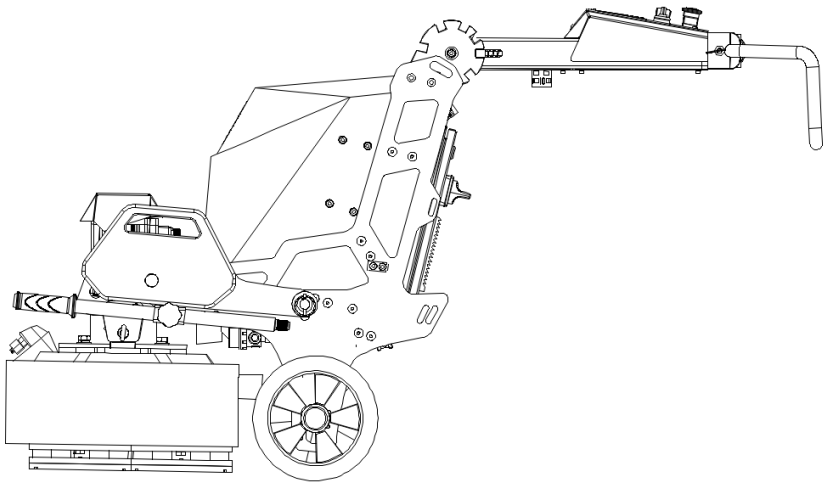
Grinding pressures

Designation	Value
Contact pressure Sanding Swivel weights rear and without additional weights	64 kg
Contact pressure grinding Swivel weights front Without additional weights	97 kg

The grinding pressure can be increased by using suitable additional weights.

4.1.3 Dimensions, weights, and volume of the machine

Fig. 2 Dimensions of the machine



Designation	Value
Dimensions in grinding position W x L x H	462 mm x 1,597 mm x 937 mm
Dimensions in transport position	462 mm x 939 mm x 961 mm
Grinding wheel, diameter	200
Tool holder, diameter	200 mm
Grinding width of the machine	460 mm
Total weight, empty	219 kg
Water tank volume	25

4.1.4 Environmental conditions

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

4.1.5 Noise emission

The grinding machine 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	Standard reference
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 procedure:

- 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 levels and sound energy levels of noise sources from sound pressure measurements - Envelope method of accuracy class 2 for a free field over a reflecting plane

The noise values determined 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 use under typical operating conditions on concrete floors. The actual noise level may vary.

➢ Take appropriate noise protection measures.

Noise protection measures

The operator is obliged to regularly check the noise level at the workplace and, if necessary, to take organizational protective measures.

Directive 2003/10/EC.

- Wear hearing protection above 80 dB(A).
- Remove persons without hearing protection from the noise 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 its use.

- Wear hearing protection throughout the entire grinding operation

  e.g., ear muffs with an SNR * 25 dB.

4.1.6 Vibration

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

- Grinding process,
- machine settings,
- Tool type and condition,
- Substrate,
- The operator's working methods.

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

Vibration exposure limit values

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

The table shows limit values according to EU Directive 2002/44/EC on minimum requirements for the protection of workers from the risks of vibration.

Measured values on the machine

Measured variable	Designation	Measured value	Measurement uncertainty	Standard reference
Effective Vibration Total value (hand-arm)	a_{hv}	3.2 m/s*	+ 0.5 m/s	EN ISO 20643 / EN ISO 5349-1

Rated 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 evaluate hand-arm vibration exposure. The specified measured values were determined under practical conditions on a concrete floor.

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

Result

The measured vibration value of the machine is below the legal trigger value, provided that the machine is operated as intended and with serviced grinding tools.

Measures to reduce vibration

Operator

The employer or operator is obliged 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 Ordinance (LärmVibrationsArbSchV).

These include in particular:

- organizational working time limits,
- provision of ergonomic aids,
- regular instruction of employees,
- documentation of measurement results.

Operators

- To reduce vibration exposure, observe the following measures:
  - Regularly check grinding tools for imbalance, wear, or damage and replace them in good time.
  - Always guide the machine with both hands and in a controlled manner.
  - Wear vibration-damping gloves.
  - Limit working intervals and take regular breaks.
  - Apply grinding pressure evenly and do not use excessive force.
  - Ensure that the surface is stable and level.

4.1.7 Power supply and operating materials Electrical power supply

Designation	Value
Mains voltage	230
Nominal power	3.7 kW
Nominal current	10 A
Input frequency	50 / 60 Hz
Frequency converter	7.5 kW
Electrical connection	CEE 16 A — 230 V

The machine is connected to the power supply using a connection cable. The supply voltage is 230 V.

- Only use the machine with the switch box closed.

After switching off or pulling the mains plug:

⚠ **DANGER.** After disconnecting the power plug, high voltage is still present in the frequency converter. Touching electrical components is fatal.

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

Water for wet grinding

Designation	Value
Water tank, volume	25
Water quality	Municipal water

4.2 Structure

4.2.1 Overall views

4.2.2 Views



Fig. 3 Overall view - Front view

Item	Designation	Item	Designation
1	Water tank	2	Engine
3	Machine rack	4	Gearbox and grinding wheels
5	Front nozzle	6	Dust cover
7	Handle	8	Control unit
9	Guide and control console	10	Weights
11	Wheels	12	Headlights

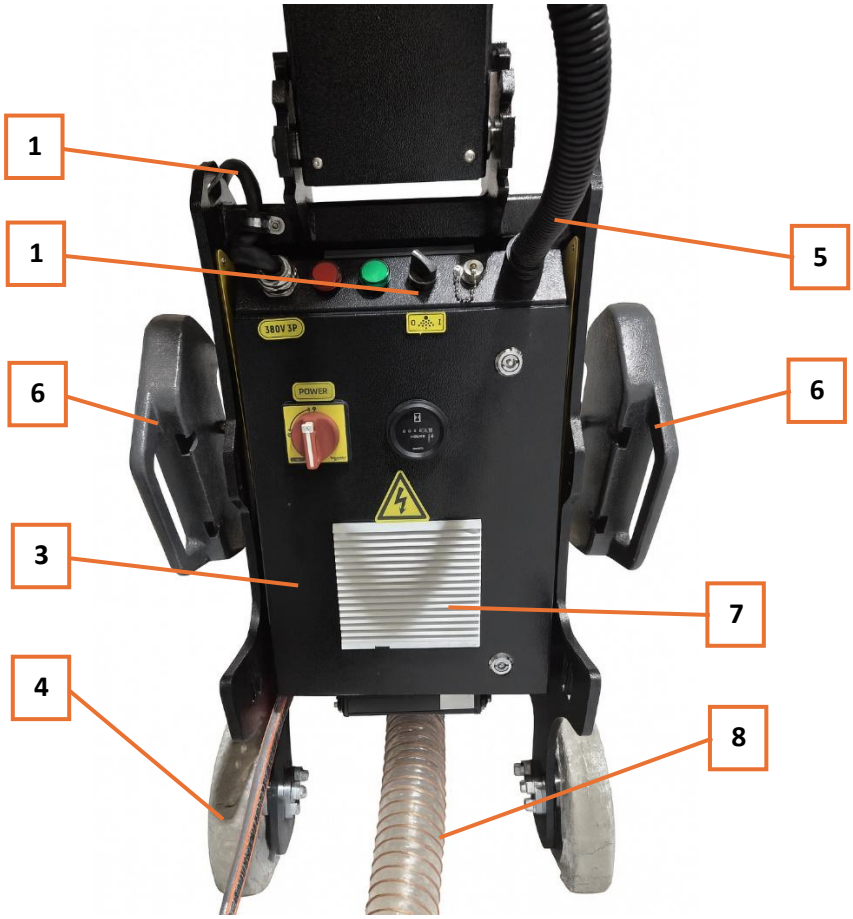


Fig. 4 Overall view — Rear view

Item	Designation	Item	Designation
1	Indicator lights and switches	2	Connection cable
3	Control cabinet	4	Wheels
5	Cable routing	6	Weights
7	Ventilation opening	8	Vacuum cleaner hose

4.2.3 Position of the weights

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

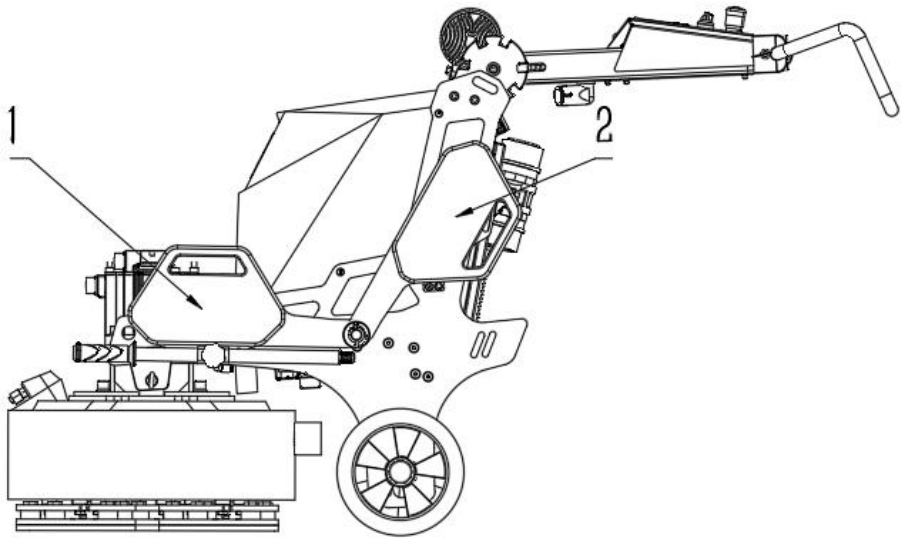


Fig. 6 Weight positions

Pos.	Designation	Pos.	Designation
1	Grinding position	2	Tilt position

When setting a position, always move both weights to the desired position.

4.2.4 grinding tools

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

4.3 Control and display elements

4.3.1 Control panel on the guide and control console

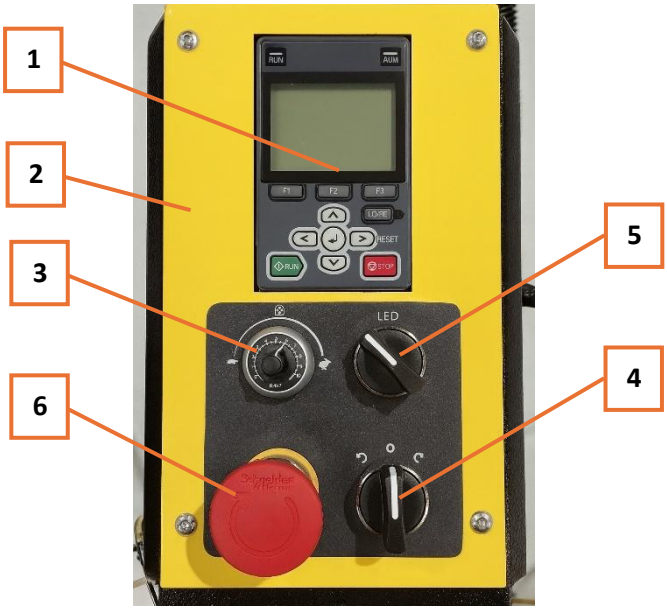


Fig. 13 Control panel

Item	Designation	Function
1	Display and control unit Frequency converter	Displays the live parameters of the machine
2	Control panel	
3	Speed controller 	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

4	LED switch 	LED lighting on/off switch
5	Drive direction selector switch 	Three positions: •  = Counterclockwise grinding direction • 0 = Grinding drive off •  = Clockwise grinding direction
6	Emergency stop button 	Stops dangerous movements immediately

4.3.2 Controls on the control box



Fig. 14 Operation at the switch box

Item	Designation	Function
1	Main switch with emergency stop function 	Switches the electrical power supply on and off. Position 0: • All electrical components are de-energized. • Voltage is present on the supply line up to the main switch. • The frequency converter retains a residual voltage for approx. 7 s after being switched off. Position 1: • Voltage is also applied to electrical components.
2	Operating hours counter	Displays the current number of operating hours.

		
3	Lock	Keeps the switch box closed. Can only be opened with a special key.
4	Outlet filter	Ensures fresh air supply in the switch box.
5	Cable gland	
6	Operating light, red 	Lights up when the main switch is turned on and the unit is not in operation
7	Operating light, green 	Lights up when the main switch is turned on and the machine is in operation
9	Water supply/water nozzle switch	On/off switch for the water nozzle for wet grinding

4.4 Work area

4.5 Grinding with the machine

The operator holds the machine by the handle and guides it in the desired direction. The operator walks directly behind the machine in an upright position.

The operator is directly exposed to noise and dust emissions.

4.5.1 Grinding position of the machine

Before starting to grind, the machine is moved into the working position.

4.5.2 Description of the process

Clear the area to be ground.

Grinding tools are mounted in the tool holders. These are electrically driven and move in an oscillating motion. The tool holders are arranged in such a way that a continuous grinding track is created when the machine is moved. 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 increasing the quality of the grind.

4.5.3 Dry grinding

⚠ WARNING Danger from dust.

➢ Wear respiratory protection.

Dry grinding is

- fast,
- flexible,
- dust-intensive

and suitable for

- rough work,
- renovation work
- preparatory work.

To prevent dust from spreading in the area of the grinding tool, a dust guard is mounted around the tools. In addition, a vacuum cleaner must be connected to the machine. The vacuum cleaner must be switched on separately and runs continuously during dry grinding.

Follow the operating instructions provided by the vacuum cleaner manufacturer.

4.5.4 Wet grinding

Wet grinding is:

- clean,

- precise,
- slower than dry sanding.

and for:

- fine grinding,
- polishing
- 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 grinding begins, the front sprayer is switched on at the control cabinet.

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

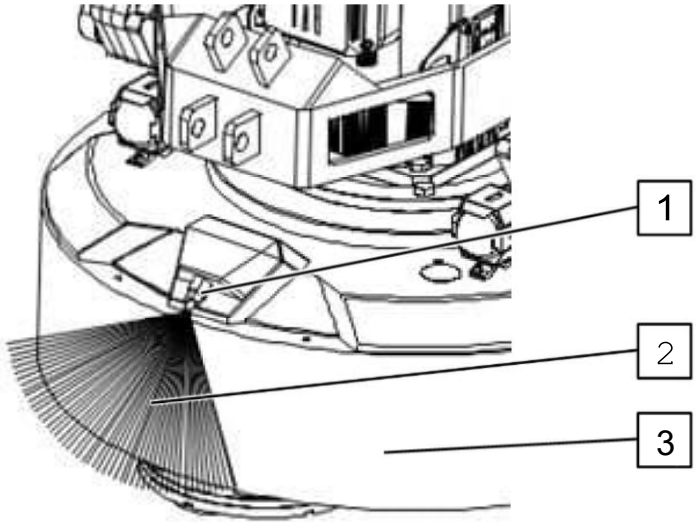


Fig. 17 Spray nozzle in the front area

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

Splash water continuously escapes from the spray nozzle.

4.5.5 Manual grinding

During manual grinding, the operator grips the handle of the machine and guides it in the desired direction. The operator walks behind the machine and looks in the direction of grinding.

The operator keeps an eye on the position of the connection cable and prevents the cable from being sanded over.

4.5.6 Grinding example Direction of travel

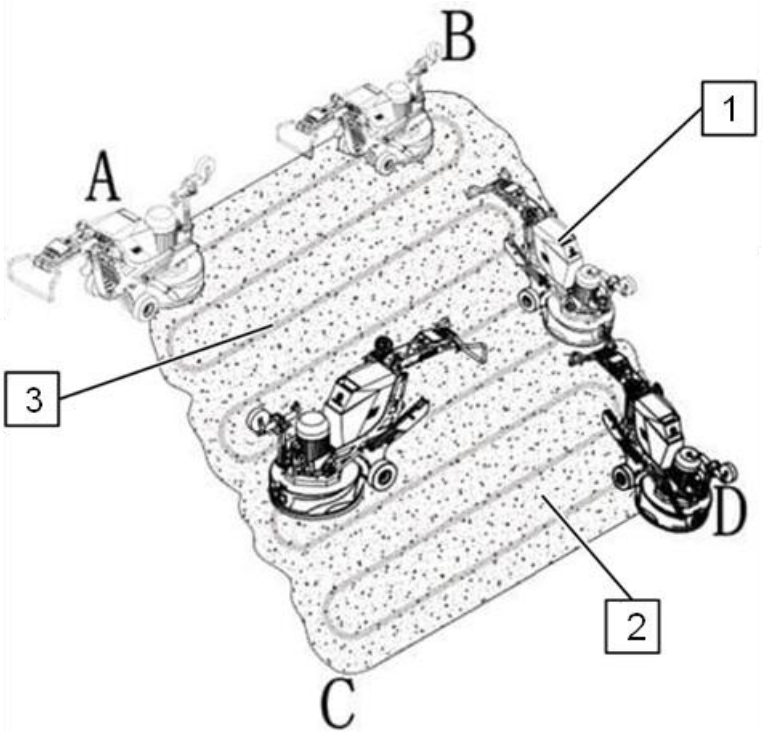


Fig. 18 Grinding path on wide surfaces

Item	Designation	Item	Designation
A	Starting point	B	Turning point
C	Turning point	D	End point
1	Machine positions	2	Floor space
3	Grinding track	-	-

When grinding, the machine is guided forward over the surface to be processed. The grinding passes are parallel and so close together that the grinding marks overlap by approx. 20%. Approx. 400 mm to 600 mm before the edge of the surface, e.g., a wall, the machine is turned around. When turning, the machine travels in a curve. As a result, the machine travels 180° in the opposite direction.

wall. When turning, the machine travels in a curve. As a result, the machine travels 180° in the opposite direction.

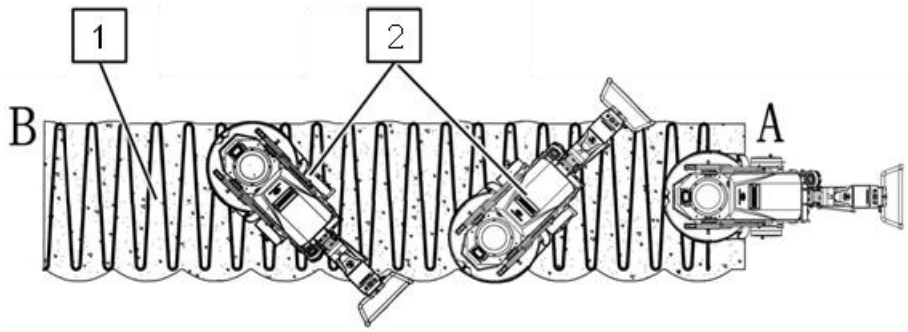


Fig. 19 Sanding path on narrow surfaces

Item	Designation	Item	Designation
A	Starting point	B	End point
1	Skid mark	2	Machine positions

Guide the machine forward in a right-left movement over the surface to be processed. To do this, turn the machine at the edge of the surface with the front facing in the direction of work, without driving in a curve. During grinding, the operator moves slowly but steadily from A towards B. When working with the remote control, the movement is controlled with the remote control.

4.6 Safety concept

4.6.1 Markings on the machine and packaging

Safety-related information is provided on the machine and packaging in the form of pictograms and/or labels. These indicate risks that:

- occur frequently and/or
- have serious consequences.

The following markings are affixed to the machine:

Meaning	Location	Label
Warning of dangerous electrical voltage	Switch box	
Warning of hand injuries Hand injury	On the additional weight	
Vibration warning	On the rack	

Meaning	Location	Label
Read the operating instructions before using the machine	On the rack	
Wear a protective helmet	On the rack	
Wear hearing protection	On the rack	
Wear safety goggles	On the rack	
Wear vibration-dampening Wear protective work gloves	On the rack	
Wear insulated safety shoes	On the rack	
Markings for attaching the machine to suitable lifting equipment for transport.	Attachment points	
Note Voltage: 220/230V	Panel on the switch box	

Warning of water leakage	On the rack	

4.6.2 Emergency stop, emergency shut-off devices, main switch

Device	Location	Function
Main switch with emergency stop function	On the switch box	Immediately cuts off the supply of electrical energy. ➢ Note residual energy in the frequency converter
Emergency stop button	On the cover above the switch box	Immediately stops dangerous movements. Immediately cuts off the supply of electrical energy. ➢ Note residual energy in the frequency converter

The emergency stop and emergency shut-off devices:

- are easily accessible,
- lock when activated,
- and act directly.

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

➢ Check emergency stop and emergency shut-off devices regularly.

Restarting after an emergency stop or emergency shutdown:

➢ Check the cause of the activation.

- If the cause is unclear, do not start up the machine.
- Rectify the cause.
- Reset the emergency stop or emergency shutdown device.
- Start automatic operation.

During maintenance work, switch off the main switch of the machine, disconnect the power plug, and secure it against being reconnected.

4.6.3 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	Establishes electrical connections between conductive parts in order to achieve potential equality.	

4.6.4 Dust protection

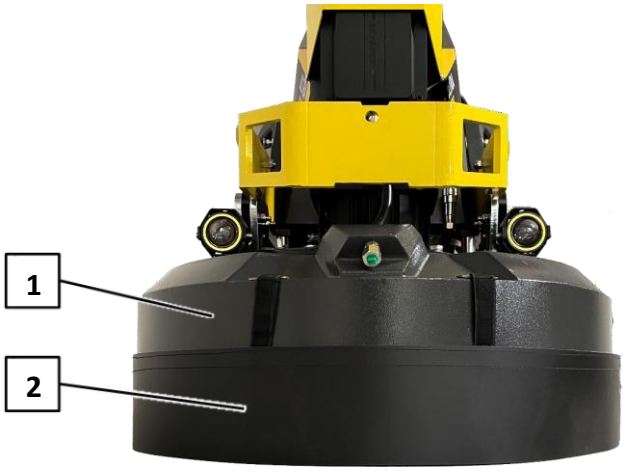


Fig. 20 - Dust cover

Item	Designation
1	Gearbox and grinding wheels
2	Dust cover

The dust guard prevents dust from escaping during machining.

- Attach the dust cover before starting work.

4.6.5 Overload

The motor is equipped with overload protection that automatically trips and prevents the machine from operating.

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

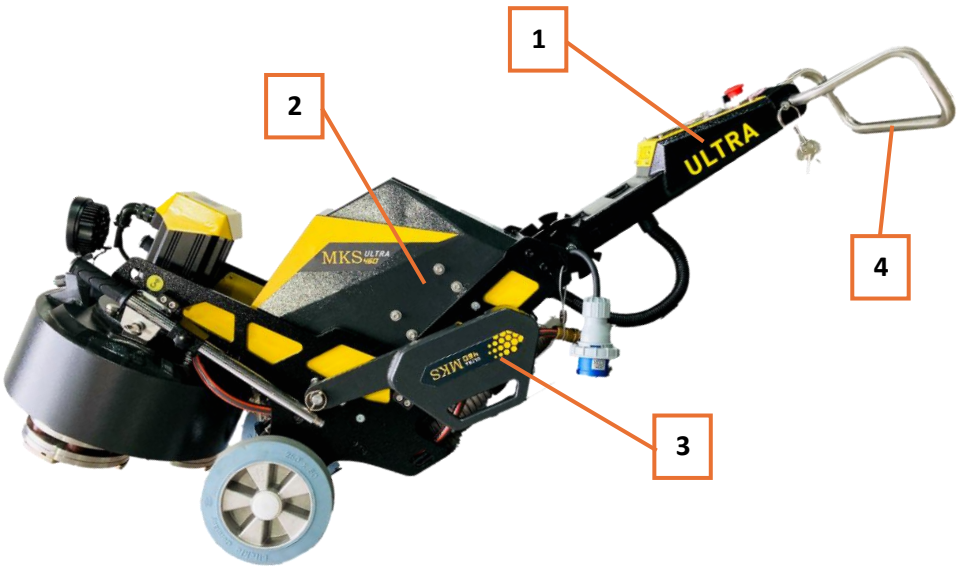
In case of overload

- Stop grinding.
- Allow the motor to cool down for 10 to 30 minutes.

5 Transport

The machine can be tilted to make it easier to move.

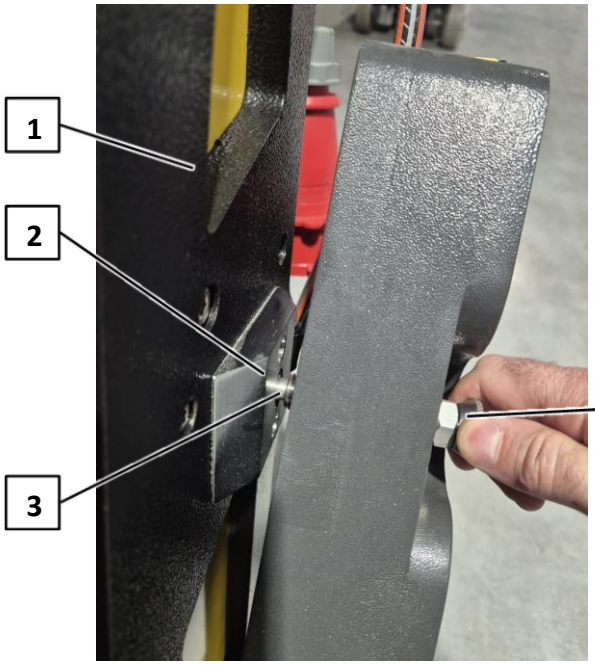
5.1 Transport position



Item	Designation	Item	Designation
1	Control and operating console	2	Rack
3	Weight in transport position	4	Handle

5.1.1 Set the weights to the transport position

1. Grasp the weight.
2. Pull the locking pin on the rack.



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

Fig. 27 Adjusting the weight

3. Move the weight and release it. The transport position of the weight is now set. The center of gravity of the machine is slightly offset above the drive wheels.

5.2 Preparing the machine for packaging

5.2.1 Packing view and packing dimensions

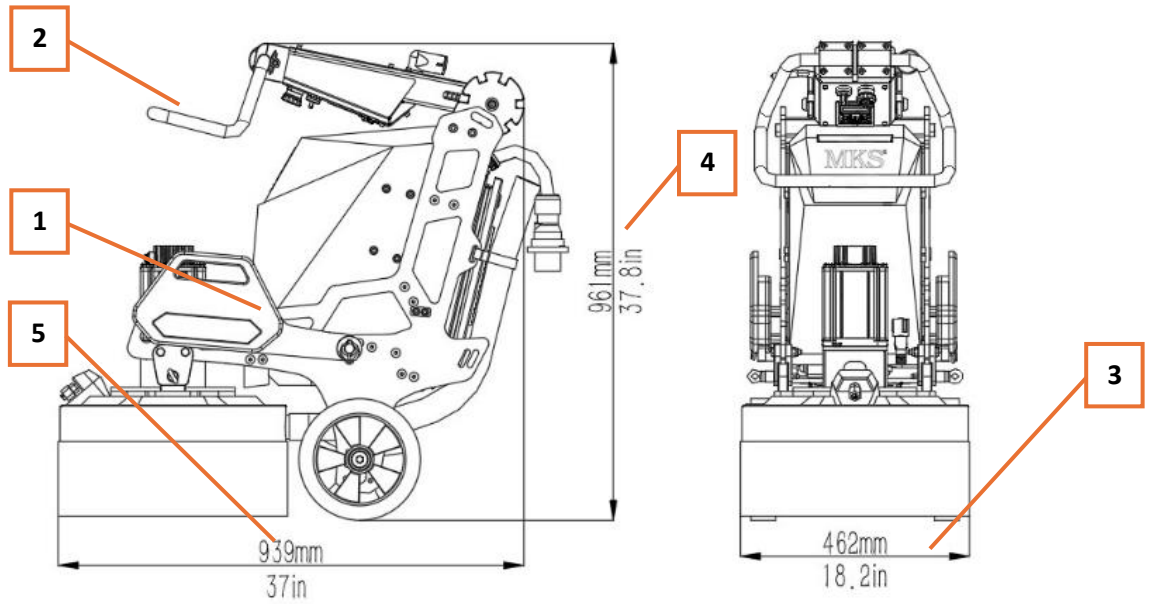


Fig. 30 Packing view and dimensions of the machine

Item	Designation	Item	Designation
1	Weight in working position	2	Guide and control console with handle
3	Packing width approx. 554 mm	4	Packing height approx. 1,009 mm
5	Pack length approx. 1,001 mm		

5.2.2 Bringing the weight into the working position

- Chapter 7.1.1

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.

5.2.3 Folding down the guide and control console with handle

- Chapter 7.1.2

5.3 Transporting the machine

Lifting the machine

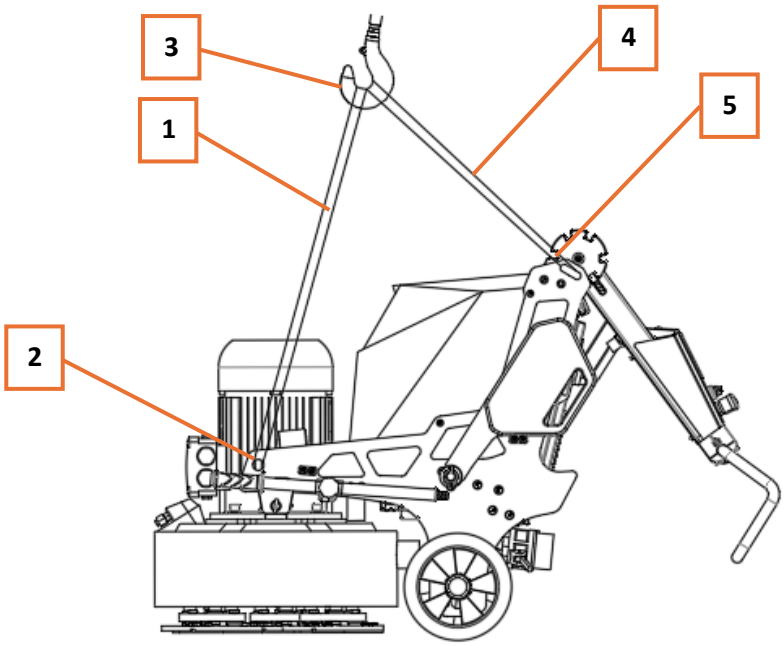
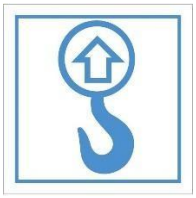


Fig. 32 Machine with lifting gear

Item	Designation	Item	Designation
1	Hoisting gear	2	Lifting eyes in the motor area, 2 pieces
3	Crane hook	4	Lifting gear
5	Lifting eyes on the rack	-	Load center of gravity

Attaching the load

- Dimension the load capacity of the crane hook and hoists to the machine weight.
- Have two hoists and a crane ready.
- Use undamaged slings and sling eyes.



- Guide one hoist through two lifting eyes in the machine frame near the motor.

- Pass the second hoist through two lifting eyes on the rack.
- Hook the lifting devices onto the crane hook.
- Check that the lifting gear is seated correctly.
- Lift the machine slightly and check the load distribution.

The load must not tip over when slightly raised.

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 position of the lifting gear and the load distribution.

When craning over high obstacles:

- Use ropes that are sufficiently long and suitable.
- Adjust the lifting height of the load to suit the local conditions.
- Check lifting height, slewing and/or travel range.

Crane:

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

- the expected transport route and
- external influences

Protect the machine against moisture on all sides.

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

- Lift the transport crate using lifting gear at the lifting points and place it on the means of transport.
- Secure against slipping and tipping.

6 Assembly

6.1 Receive the machine and remove the packaging.

⚠ Check packaging for damage.

If the packaging is damaged, inform the transport company.

⚠ Check the machine for damage.

➢ If there are signs of damage, report the damage to the dealer.

⚠ Check whether the machine corresponds to the agreed scope of delivery.

➢ If you have any questions, please contact the dealer.

6.2 Mounting grinding tools

ATTENTION There are many different grinding tools and systems 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 mounting and using the grinding tools, **always** follow **the instructions and mounting regulations of the respective tool manufacturer**. This is the only way to ensure safe operation of the machine.

HTG Europe GmbH accepts no liability for damage, hazards, or malfunctions caused by incorrectly mounted or non-approved tools.

6.2.1 Switch off the machine

➢ Pull out the mains plug and secure it against being plugged back in.

⚠ **DANGER**. After pulling the power plug, high voltage is still present in the frequency converter. Touching electrical components is fatal.

➢ Do not touch electrical components.

➢ Wait until the indicator light goes out.

The machine is now de-energized.

6.2.2 Tilt the machine

➢ Move the weights to the transport position. The center of gravity is behind the wheels and stabilizes the subsequent tilting position.

➢ Place the guide and control console and handle in a vertical position



Fig. 33 Machine with vertical guide and control console

Item	Designation	Item	Designation
1	Weights in transport position	2	Handle in tilting position

Tilt machine



Fig. 34 Machine in tilted position

Item	Designation	Item	Designation
1	Working area for tool change		
3	Weight in tilting position	4	Guide and control console

WARNING Risk of tipping on uneven ground.

- Only tilt the machine 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 be secure and immovable in the tilted position.

Procedure:

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

- ➢ If necessary, ask a second person to help with the tilting by holding the handle and tilting the machine.
- ➢ Instruct personnel.
- ➢ Hold the handle.
- ➢ Place one foot on the weight.
- ➢ Press the machine firmly toward the floor with the handle.
- ➢ Place the handle on the floor. The machine is now in the tilted position.
- ➢ Check the stability of the machine.

6.2.3 Mount the grinding tools.

⚠ **CAUTION** Hot surface. Immediately after using a grinding tool, the grinding tool may be hot.

- ➢ Allow the grinding tool to cool down.

Mounting grinding tools

Step 1:

- ➢ Switch off the power to the machine → 6.2.1
- ➢ Tilt the machine → 6.2.2
- ➢ Illuminate the work area.
- ➢ If present, thoroughly remove dirt, grinding 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,
  - firm, and
  - be free of play

in the tool holders.

- Hold the machine by the handle and swing it back to the working position.

Start up the machine after mounting the tool

- Move the machine to the working position.
- Unlock the emergency stop switch.
- Plug in the power cord.
- Switch on the machine.
- Start the motor in the ON – OFF direction of rotation using the switch.
- Set the speed control to 1.

  The motor runs at the lowest speed. The tool movement starts.
- Check the tool movement.
- If any of the following occur:
  - unusual noises,
  - vibrations,
  - imbalances.

  Switch off the machine and disconnect it from the power supply.
- Check the mounting of the grinding tools.

6.2.4 Remove the grinding tools

- Disconnect the machine from the power supply → 6.2.1
- Tilt the machine → 6.2.2
- Illuminate the work area.
- Carefully loosen the grinding tool depending on the grinding tool used with:
  - Rubber mallet or
  - slotted screwdriver.
- Dispose of worn grinding tools in accordance with the manufacturer's instructions.

6.2.5 Connect the vacuum cleaner hose

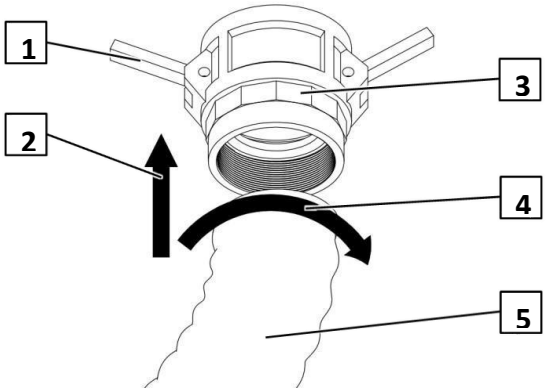


Fig. 36 Connecting the vacuum cleaner tube – 1

Item	Designation	Item	Designation
1	Clamping bracket	2	Insertion direction Vacuum cleaner tube
3	Quick release fastener on 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 fastener on the vacuum cleaner side.

Damage to property

- Do not pull the machine by the suction hose.
- Always hold the machine by the handles and grips provided for this purpose.

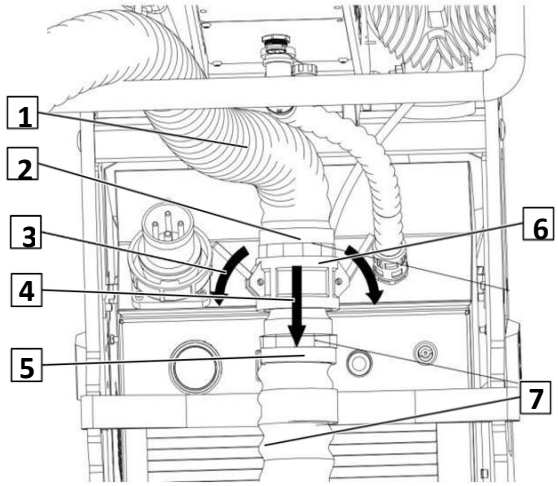


Fig. 37 Connection of the vacuum cleaner tube – 2

Item	Designation	Item	Designation
1	Vacuum cleaner hose	2	Quick release vacuum cleaner side
3	Clamping bracket locking direction	4	Attachment direction of the quick-release fastener Vacuum cleaner side
5	Quick-release fastener machine side	6	Closure direction of the clamping bracket
7	Suction hose of the machine	-	-

- Place the quick-release fastener on the vacuum cleaner side onto the quick-release fastener on the machine side and screw it tight.
- Close both clamping brackets.

The vacuum cleaner hose is now attached to the machine.

7 Start-up

7.1 Set grinding position



Fig. 38 Machine in grinding position

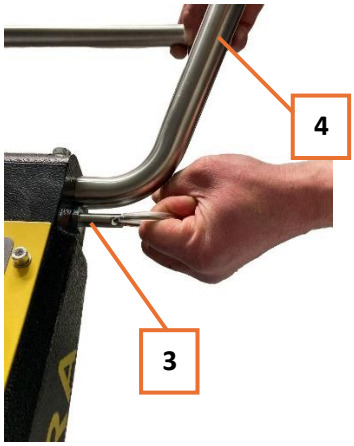
Item	Designation	Item	Designation
1	Drive with gearbox	2	Weight in working position
3	Guide and control console	4	Handle

7.1.1 Adjusting the working position of the weights

- Grasp the weight
- Move the weight into the working position.
- Engage the locking pin in the fixed block on the rack.
- Release the weight.

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

7.1.2 Adjusting the handle and the guide and control console



Item	Designation	Item	Designation
3	Adjustment pin for handle	4	Handle

Adjusting the handle

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

- Hold the handle firmly.
- 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 become misaligned.
- Release the adjustment pin.

  The adjustment pin slides automatically into the correct position. The position of the handle is locked.
- Only operate the machine with the adjustment pin fully inserted.

Adjusting the guide and control console

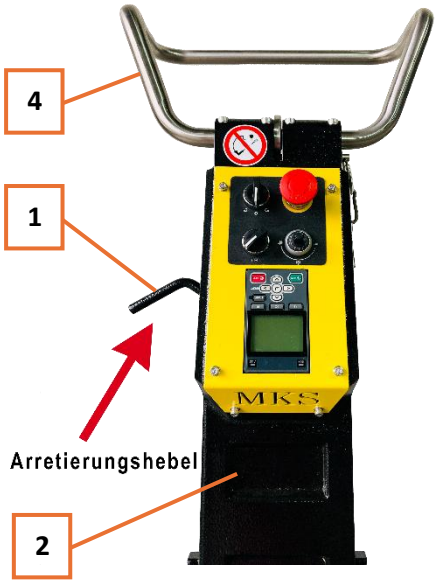


Fig. 40 Adjusting the guide and control console

Item	Designation	Item	Designation
1	Adjusting handle	2	Guide and control console
4	Handle	4	

⚠ **WARNING** The released guide and control console will tip over due to gravity.

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

7.2 Fill the water tank.

Filling the water tank is only necessary for wet grinding.

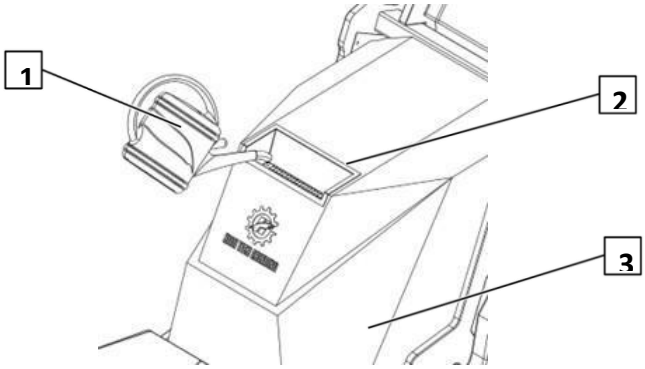


Fig. 41 Filling the water tank

Item	Designation	Item	Designation
1	Water jug	2	Filling opening
3	Water tank	-	-

⚠ Fill the water tank with tap water using the water jug.

The water tank has a maximum capacity of 25 l.

7.3 Switch on

⚠ Chapter 8.1.2

8 Operation and use

8.1 Manual procedure

8.1.1 Moving the machine to the place of use

In manual mode, the machine is pushed by the operator.

⚠ Push the machine to the place of use.

8.1.2 Switch on

Step 1:

⚠ Move the machine into the working position→ 7.1

⚠ Plug in the power cord.

⚠ When dry sanding, connect the vacuum cleaner and switch it on→ 6.2.5

ⓘ The vacuum cleaner is not part of the machine described in this operating manual.

➢ Follow the manufacturer's instructions.

➢ For wet sanding, fill the water tank → 7.2

Step 2:

On the switch box:

➢ Switch on the main switch.

The control panel on the guide and control console pops up and displays the user interface with the machine parameters.

On the control panel below the control panel:

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

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

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

➢ For wet grinding, turn on the water supply.

Step 3:

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

8.1.3 Switch off

Step 1:

On the control panel below the control panel:

- Use the speed control to reduce the speed of the drive.
- Set the selector switch for the grinding direction to "0".

Step 2:

➢ Switch off the vacuum cleaner for dry sanding.

➢ For wet sanding, switch off the water supply.

The spray mist in the front area is turned off.

- Switch off the main switch

  The control panel on the guide and control console moves down.
- Unplug the power cord.

8.2 Floors with a slope

⚠ **WARNING**. Danger when working on sloping surfaces. If the slope is too steep, the machine may tip over or slip.

- Check the slope before starting work on an inclined surface.

8.2.1 Sanding floors

For manual work:

- Slope up to max. 6°:
  - No special precautions are necessary

⚠ **WARNING** Slope greater than 6°. The machine may tip over and slip

- Floor grinding is prohibited.

8.3 Display and control panel Frequency converter

8.3.1 Display and operation



Fig. 43 Display and control panel on the machine

Item	Designation	Function
1	RUN	The frequency converter is in operating mode.
2	ALARM	Alarm is lit The error message is shown on the display "3". Once the error has been rectified, the alarm disappears.
3	Display	Display of current machine parameters, such as • Set frequency of the motor • Current frequency of the motor • Motor output current (A)
4	Control panel	The operator can use the control panel to make limited settings, such as selecting the language. The operator is locked out of the advanced settings. These can only be changed by the manufacturer.

9 Error handling

- If errors cannot be resolved, contact your dealer.

Errors	Possible causes	Remedy
Machine does not start	Power plug not plugged in	Check power connection
	Main switch set to "OFF"	Set main switch to "ON"
	Fuse blown 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 blocked	Check and clean tools
	Incorrect motor setting in the frequency converter	Contact manufacturer
Overcurrent	Short circuit at motor connection	Check cable connections and insulation
	Damaged motor cable	
	Blocked machine or stuck tool	Check and clean tools
	Faulty motor parameters in the frequency converter	Contact manufacturer
Input phase missing	Mains voltage missing on one phase	Check power supply, all 3 phases
	Connection cable or socket defective	
Output phase missing	Defect in frequency converter	Check motor–frequency converter connection, reset frequency converter, If the error persists, contact the manufacturer

Frequency converter overheating	Permanent overload of the motor	Allow machine to cool down Adjust operating parameters if necessary
	Insufficient ventilation of the control cabinet	Ensure air supply, clean ventilation slots
	Ambient temperature too high	Allow machine to cool down
	Fan defective or dusty	Check/replace fan
Abnormal power consumption	Defective motor or bearing problem	Measure motor current and compare with nominal value
	Incorrect motor parameter in the frequency converter	Check the rated current and voltage parameters
	Short circuit or phase closure	
	Mechanical blockage in the drive system	Check mechanical parts for smooth running
Irregularity in motor tuning	Motor tuning started with incorrect parameters	Only perform engine tuning when the engine is unloaded
	Machine not unloaded	Check and correct motor parameters
	Sensor error or cable error	Check cables and feedback sensors
	FU not matched to motor type	If necessary, perform automatic tuning again
Motor runs unevenly or intermittently	Grinding tools unevenly worn	Check/replace tools
	Voltage fluctuations	Check power supply
	Frequency converter incorrectly parameterized	Contact manufacturer
Grinding performance insufficient	Frequency converter incorrectly parameterized	Select suitable grinding tools
	Incorrect tool selection	Replace tools

	Worn tools	Adjust speed to material
	Insufficient speed set	Increase contact pressure
Dust extraction not working	Vacuum cleaner switched off or not connected	Switch on vacuum cleaner / check connection
	Hose clogged	Clean the hose
	Filter in vacuum cleaner clogged	Change or clean the filter
Excessive vibration during operation	Grinding tools unevenly mounted	Mount tools correctly
	Imbalance due to 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 frequency converter, replace if necessary
Fuse trips	Short circuit in cable or motor	Check cable, plug, and motor
	Overload due to blocked tool	Check/replace tools
Machine is running, but no grinding effect visible	Incorrect tool type	Select suitable tools
	Tool worn	Replace tools
	Speed too low	Increase speed
Excessive heating of the machine	Grinding load too high	Reduce load
	Ventilation slots blocked	Clean machine
	Frequency converter fan failed	Check/replace fan

10 Maintenance

⚠ **DANGER**. After disconnecting the power plug, high voltage is still present in the frequency

converter. Touching electrical components is fatal.

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

10.1 Maintenance schedule

10.1.1 Daily

Component	Activity
Check switches and indicators	Switch on the machine. Check: • Check the functions of all switches and indicators • power connection
Emergency stop switch	Turn the emergency stop switch to its release position and then press the start button. • Does the machine start up correctly? Then press the emergency stop switch again. • Does the machine stop reliably?
Machine	Cleaning the machine • Blow off the machine with compressed air
Dust extraction parts up to the connection to the vacuum cleaner	Unplug the power cord. Switch off the main switch. Remove any blockages.
Grinding tools and tool holders	Unplug the power cord. Switch off the main switch. Tilt the machine. Remove dirt from grinding tools and tool holders.
Dust cover	Check the dust cover for damage and replace if necessary.

10.1.2 Monthly

Component	Activity
Outlet filter	Check for contamination
Wheels	Check that the wheels move smoothly

10.1.3 Quarterly

Component	Action
Outlet filter	Replace every 3 months Use filter mat of class G4 in accordance with EN ISO 16890
Gear	Change oil

10.2 Cleaning

Cleaning interval:

- Daily after the working day

Before each cleaning:
- Disconnect the power plug.
- Switch off the main switch.

Component	Action
Controls and displays	Clean the exterior with a brush if it is dirty. Have dirt in the switch box or control elements removed regularly by qualified personnel.
Grinding disc cover	Remove the vacuum cleaner connection Shine a flashlight into the suction opening Remove dust from the suction opening with a soft brush.
Grinding discs	Tilt the machine. Loosen grinding tools with a suitable tool. Remove dust or grinding residue with a brush or scraper.
Ventilation opening on the switch box	Disconnect the power plug. Switch off the main switch. Clean the fan opening daily. Have the fan opening cleaned inside by qualified personnel.

External cleaning

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

- Do not clean with a high-pressure cleaner.

11 Decommissioning

When decommissioning, the machine's functionality is:

- interrupted indefinitely or
- interrupted for a longer period of time,

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

The following measures are necessary:

- Disconnect the power plug and secure it against being switched back on.
- Prevent unauthorized persons from restoring the power supply.
- Machines:
  - Move to the travel position.
  - Place on a horizontal and level surface.
  - Lower the guide and control 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.

11.1 Storage

Storage conditions

The storage location must meet the following conditions:

- dry at room temperature
- protected from the weather
- sufficiently solid floor
- low dust formation.

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

Check stored goods

Unpredictable events can occur during storage. These include:

- Weather conditions
- Building damage
- Pest infestation
- Carelessness during further storage work

Damage may occur to the machine.

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

12Recommissioning

- Chapters 6, 7, and 8

13Disposal

13.1 Dry grinding dust

The dry grinding dust produced during the grinding process may contain mineral, cementitious, metallic, or asbestos-containing components, depending on the material being processed.

- **WARNING** Inhalation of grinding dust. Grinding dust may contain fine dust that is 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 respirator,
  - protective gloves,
  - safety goggles,
  - Disposable protective suit, type 5/6.

Dry grinding dust:

- Collect and dispose of in closed containers or vacuum cleaner containers.
- Do not allow to enter the environment, sewage 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, cementitious, metallic, or asbestos-containing components, depending on the material being processed.

- **CAUTION** Wet grinding dust can be alkaline or chemically irritating. Skin,

respiratory, and eye irritation are possible.

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

Wet grinding dust:

- Collect in suitable, sealed, and chemically resistant containers.
- Do not allow to enter the sewage 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** Serious damage to the respiratory tract and carcinogenic. The dust absorbed is dangerous: Waste code 17 06 05* – "Building materials containing asbestos."

→ The provisions of TRGS 519 Technical Rules for Asbestos Removal, Renovation, or Maintenance Work must be strictly observed.

- Work with materials containing asbestos must be carried out by competent personnel in accordance with TRGS 519 Annex 3 or 4 with appropriate asbestos expertise.
- Pack the dust in dust-tight, labeled asbestos bags with a red warning label "A" or in big bags.
- Dispose of via approved waste disposal companies in accordance with the hazardous substances and waste regulations
  - KrWG - Law on the Promotion of Recycling and Ensuring Environmentally Compatible Waste Management
  - TRGS – Technical Rules for Hazardous Substances
  - AVV – Ordinance on the European Waste Catalog.
- Do not allow wet asbestos-containing grinding sludge to dry.

13.4 Other waste

Designation	Disposal
Grinding tools	Observe legal regulations and manufacturer's instructions.
Filter material	According to the filtered dust See sections 11.4.1 to 11.4.3
Battery in the remote control	Dispose of in accordance with legal requirements. Do not dispose of in household waste.
Battery in the switch box	

Depends on duration of use and soil material

13.5 Disposal upon final decommissioning and dismantling

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

- Electrical and electronic components:
  - Cables
  - Switches
  - Control elements
  - Lights
  - Displays
- Rubber on tires.
- Plastics, e.g., remote control housing.
- Observe disposal instructions under 3.3.2.

14 Systems for documentation

14.1 Internal documentation

Designation	Identification
Parts list	HTG 460 Ultra

14.2 Type plate

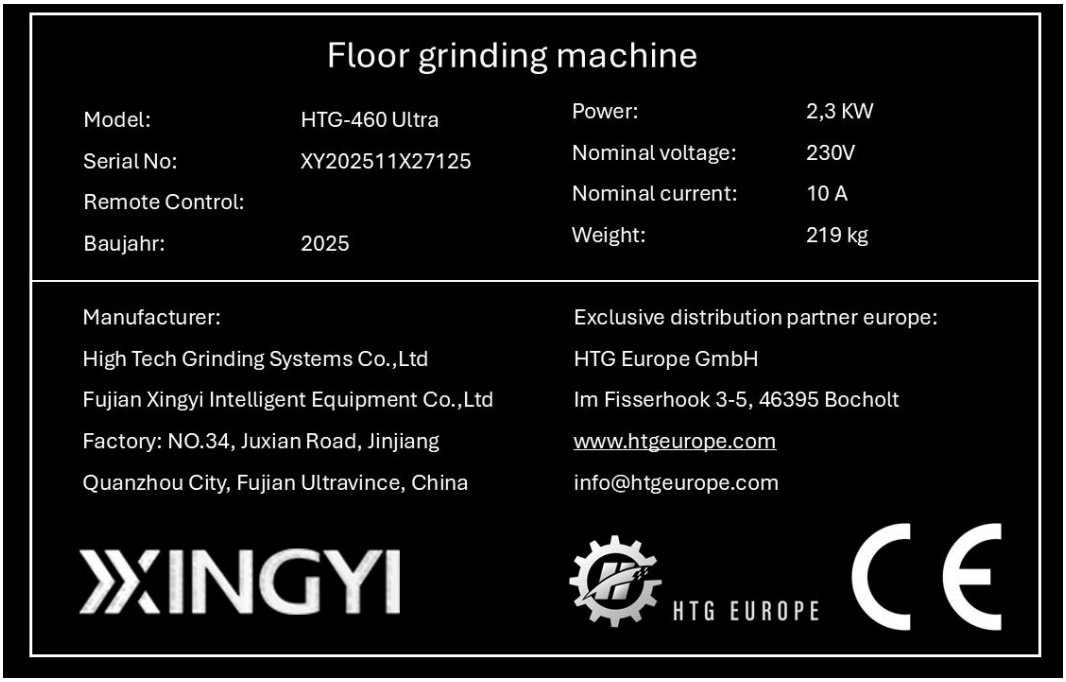


Fig. 50 Type plate, example

The type plate provides the minimum information about the machine. The minimum information has been supplemented with connection data.

EG-/EU- Konformitätserklärung

nach der Maschinenrichtlinie
2006/42/EG Anhang IIA

Hiermit erklären wir, dass die nachfolgend bezeichnete Maschine aufgrund ihrer Konzipierung und Bauform sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der EG-/EU-Richtlinien entspricht.

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.

Bezeichnung: *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**

entspricht folgenden EG-Richtlinien: *Complies with the following EG directives:*	**Maschinenrichtlinie 2006/42/EG**	*Machinery Directive 2006/42/EG*
	EMV-Richtlinie 2014/30/EU	*EMV Directive 2014/30/EU*

Angewandte harmonisierte Normen, insbesondere: *Applied harmonized standards, in specific:*	**EN ISO 13849-1:2023**	Sicherheit von Maschinen – Sicherheitsbezogene Teile von Steuerungen *Safety of machinery – Safety-related parts of control systems*
	EN ISO 12100:2011	Sicherheit von Maschinen – Allgemeine Gestaltungsleitsätze – Risikobeurteilung und Risikominderung *Safety of machinery – General principles for design – Risk assessment and risk reduction*
	EN ISO 13857:2020	Sicherheitsabstände gegen das Erreichen von Gefährdungsbereichen mit den oberen und unteren Gliedmaßen *Safety distances to prevent upper and lower limbs from reaching hazardous areas*
	EN ISO 13854:2019	Sicherheit von Maschinen – Mindestabstände zur Vermeidung des Quetschens von Körperteilen *Safety of machinery – Minimum gaps to prevent crushing of body parts*
	DIN EN ISO 14118:2018	Sicherheit von Maschinen – Vermeidung von unerwartetem Anlauf *Safety of machinery – Prevention of unexpected start-up*
	EN 60204-1:2019	Sicherheit von Maschinen – Elektrische Ausrüstungen von Maschinen *Safety of machinery – Electrical equipment of machines*

Bei einer Änderung dieser Maschine verliert diese Erklärung ihre Gültigkeit. Die speziellen technischen Unterlagen nach Anhang VII Teil A sind für die Maschine erstellt worden.

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.

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

Exklusiver Vertriebspartner:
Exclusive distribution partner
HTG Europe GmbH
Im Fisserhook 7, 46395 Bocholt, Deutschland

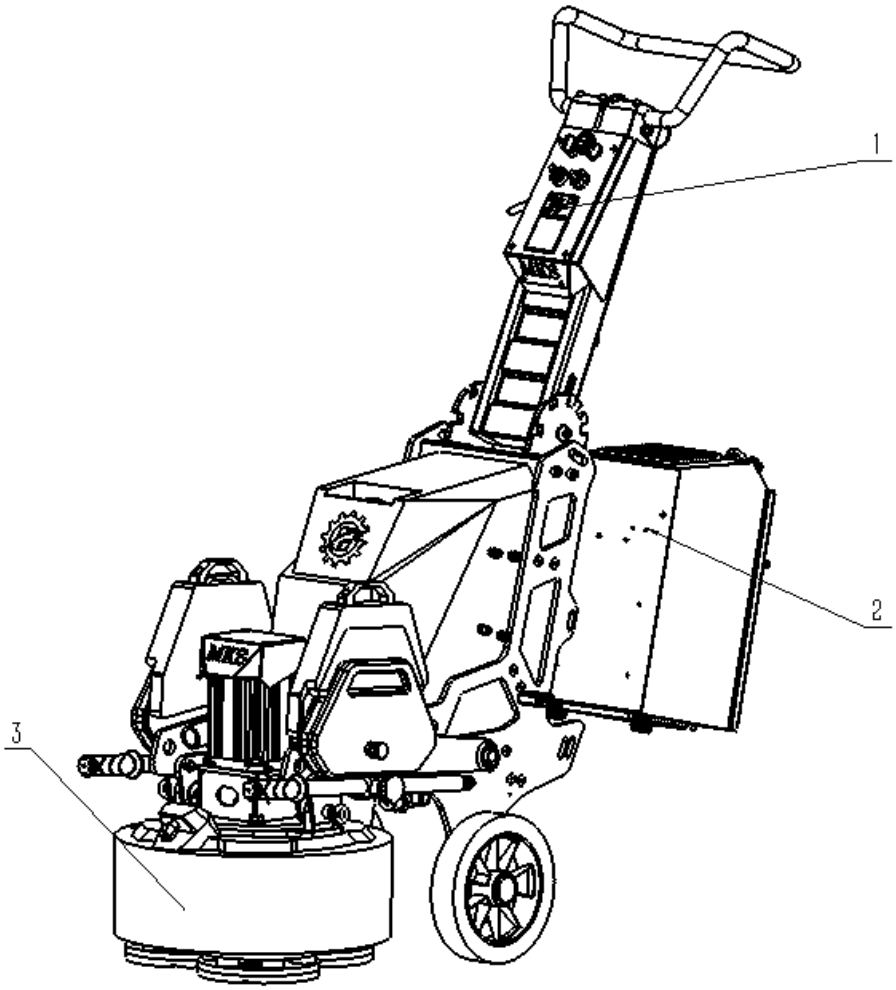
Bocholt, 04.12.2025

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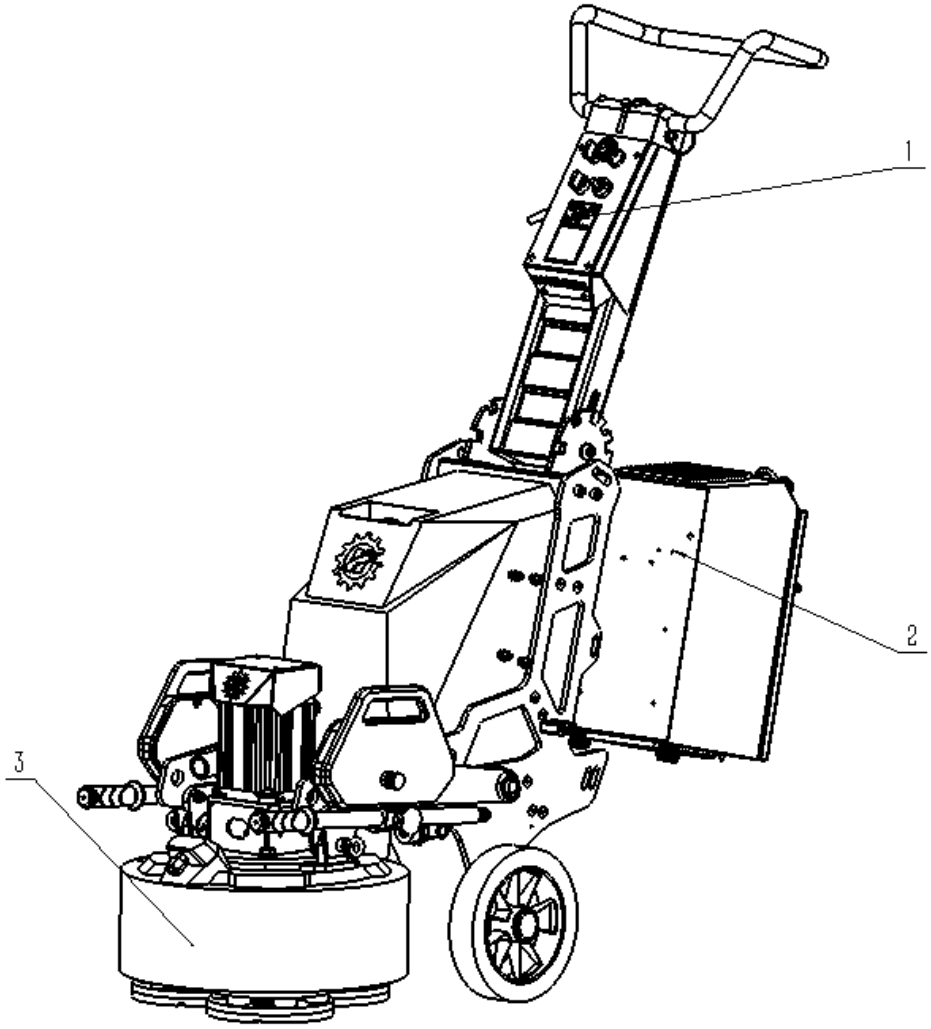
Peter Bußmann – HTG Europe GmbH - Managing director

15Exploded drawings

15.1 Overall view

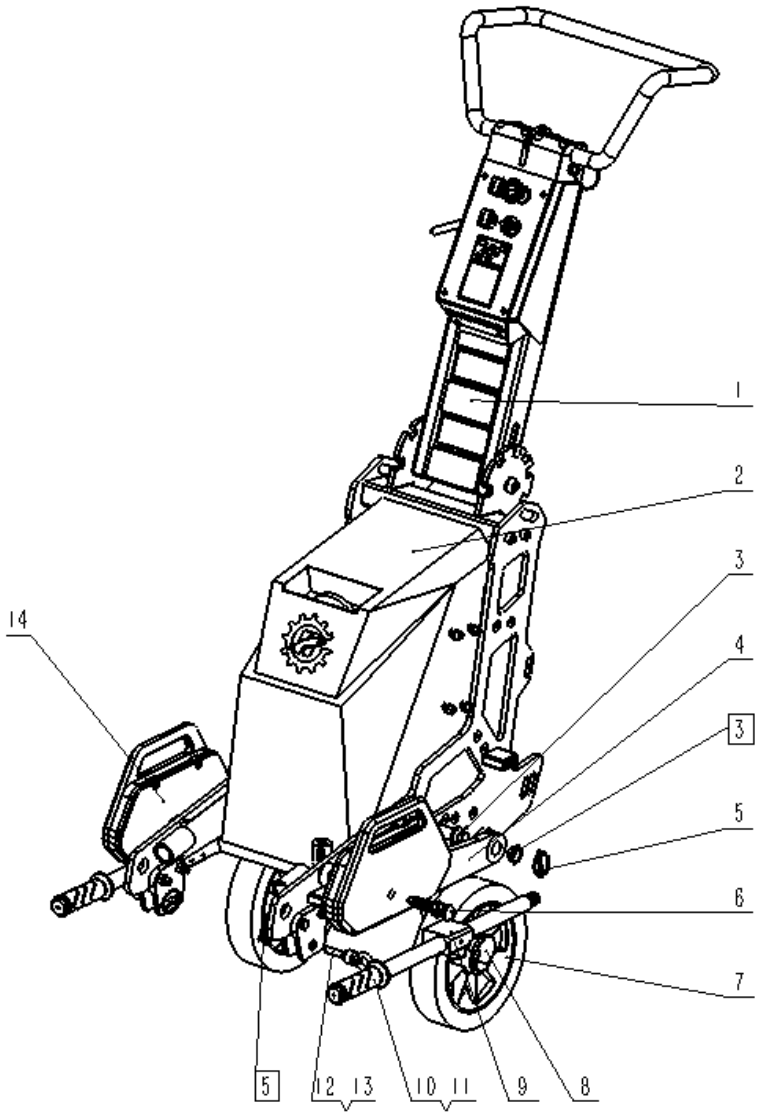


Pos	Item no	Description	Pcs
1	2.11.017.006	Rack components	1
2	2.13.017.007	Electronic control box components	1
3	2.12.017.009	Gearbox components	1



Item	Item no	Description	Pcs
1	2.11.017.013	Rack components	1
2	2.13.017.007	Electronic control box components	1
3	2.12.017.016	Gearbox components	1

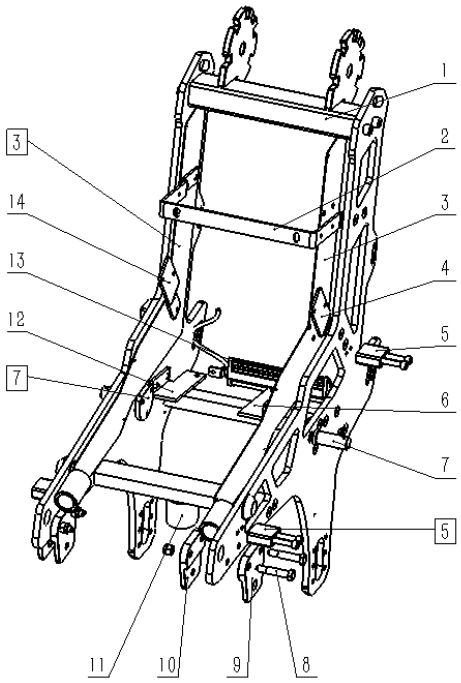
15.2 Rack assembly



Pos	Item no	Description	Pcs
1	2.41.017.024	Swing arm assembly	1
2	2.41.017.015	Water tank assembly	1
3	3.22.112.070	Flange composite copper sleeve	4
4	4.11.017.141	Left counterweight - painted	1
5	3.22.121.002	Ring pin	4

6	3.22.121.031	Reset indexing pin	2
7	2.41.017.003	Wheel axle assembly	2
8	5.11.104.003	Star handle	2
9	4.11.041.048	Lifting bar base 2 - painted	2
10	3.22.122.001	Rubber handle sleeve	2
11	4.11.026.034	Lifting bar - electroplated	2
12	4.11.026.061	Quick-release connecting pin - electroplated	2
13	5.11.161.001	Eye bolt	2
14	4.11.017.142	Right counterweight - painted	1

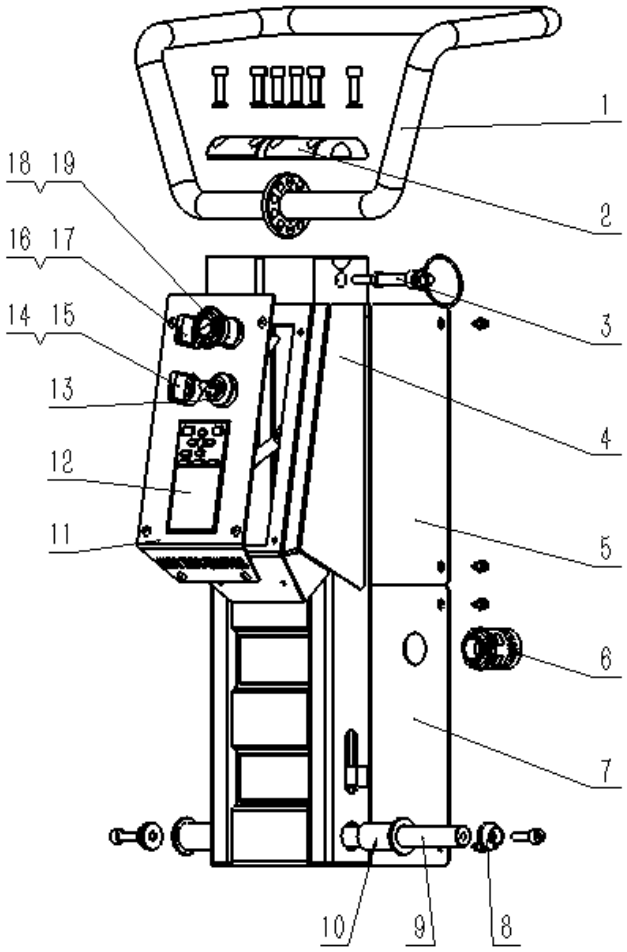
15.3 Rack components



Pos	Item no	Description	Pcs
1	2.21.017.018	Frame welding - painted	1
2	4.11.017.100	Front fixed sheet metal - painted	1

3	4.11.017.092	Decorative panel - painted	2
4	4.11.017.099	Lower water tank fixing plate, left - painted	1
5	4.11.078.060	Counterweight front fixing block	4
6	4.11.017.097	Lower fixed sheet metal, left - painted	1
7	4.11.017.025	Counterweight shaft - electroplated	2
8	5.11.162.002	Pinned hole screws - electroplated	4
9	4.11.017.113	Ear connectors (Outer panel) - electroplated	2
10	4.11.017.112	Ear connectors (Inner panel) - electroplated	2
11	4.11.017.021	Support columns	1
12	4.11.017.103	Lower fixed sheet metal, right - painted	1
1	3.21.116.007	LED light	1
14	4.11.017.098	Lower water tank fixing plate, right - painted	1

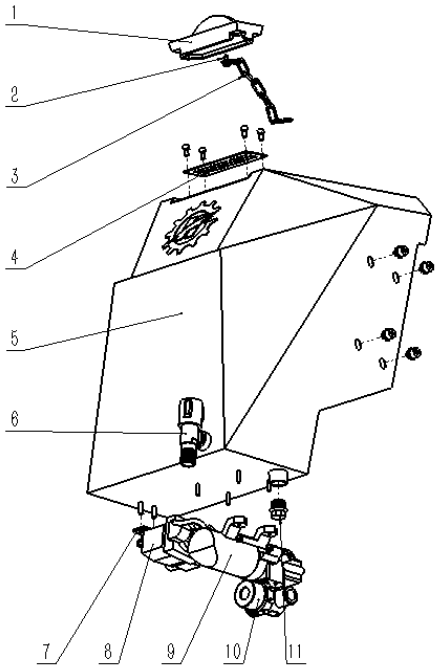
15.4 Control handle assembly



Item	Item no	Description	Pcs
1	4.11.019.023	Swing arm handle	1
2	4.11.019.061	Clamping cover - painted	2
3	3.31.101.005	Swing arm pin	1
4	2.21.017.015	Swing arm welded - painted	1
5	4.11.017.102	Swing arm rear upper cover plate - painted	1
6	5.11.110.008	Cable protection cover	1
7	4.11.017.101	Swing arm rear cover plate - painted	1

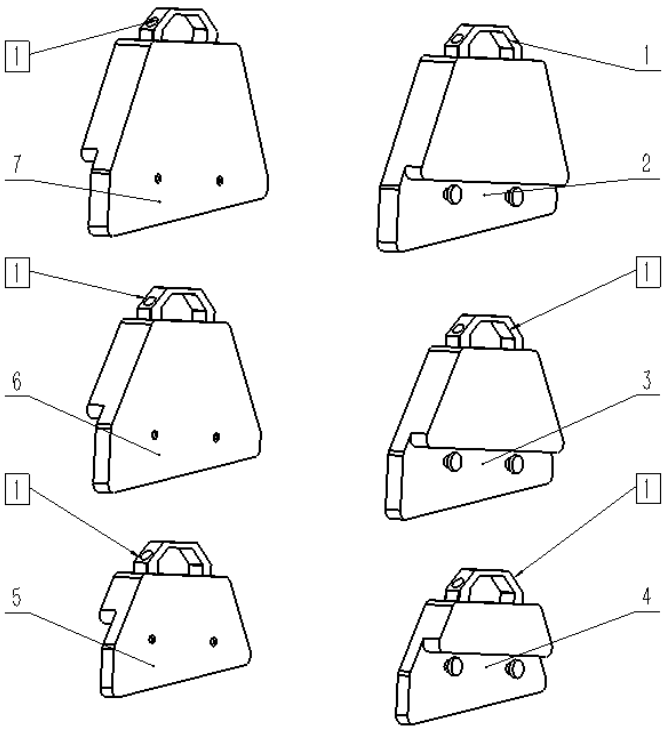
8	4.11.001.097	Swing arm decorative cover - electroplated	2
9	4.11.017.110	Rotary shaft - electroplated	1
10	4.11.017.030	Swing arm pin sleeve - electroplated	2
11	4.11.017.148	Operation panel - painted	1
12	3.21.124.011	Operator	1
13	3.21.117.007	Integrated potentiometer	1
14	3.21.114.095	Two-position selector switch base	1
15	3.21.114.094	Two-position selector switch	1
16	3.21.114.083	Three-position selector switch base	1
17	3.21.114.084	Three-position selector switch head	1
18	3.21.114.079	Emergency stop switch base	1
19	3.21.114.080	Emergency stop switch head	1

15.5 Water tank components



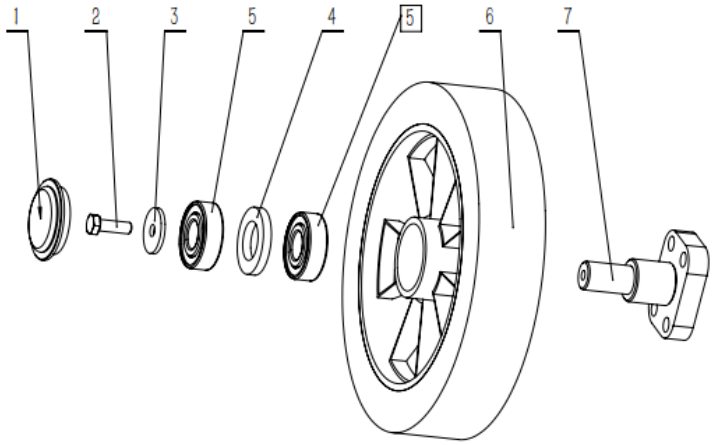
Pos	Item no	Description	Pcs
1	4.11.017.150	Water tank cap	1
2	5.11.103.022	Flat-head self-tapping screws	1
3	3.22.201.012	Steel chain	1
4	4.11.018.129	Water tank filter plate - painted	1
5	4.11.017.104	Water tank - painted	1
6	3.15.113.001	Water switch - capped	1
7	4.11.029.152	Solenoid valve mounting seat - painted	1
8	3.12.161.001	Solenoid valves	1
9	3.11.151.001	Dust pump	1
10	3.22.201.005	Filter	1
11	3.22.126.001	End cap	1

15.6 Weights



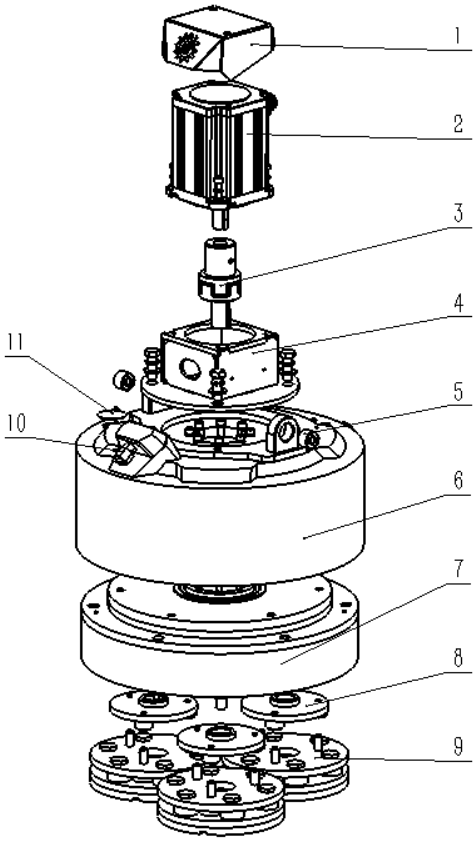
Pos	Item no	Description	Pcs
1	3.22.127.001	Handle	6
2	4.11.017.132	Counterweight 3, left - painted	1
3	4.11.017.136	Counterweight 2, left - painted	1
4	4.11.017.128	Counterweight 1, left - painted	1
5	4.11.017.130	Counterweight 1, right - painted	1
6	4.11.017.138	Counterweight 2, right - painted	1
7	4.11.017.134	Counterweight 3, right - painted	1

15.7 Wheel assembly



Pos	Item no.	Description	Pcs
1	3.22.111.006	Wheel decorative cover	1
2	5.11.101.074	Hex head screw	1
3	5.11.109.026	Washer - electroplated	1
4	3.22.201.001	Plastic sleeve	1
5	3.22.112.081	Bearing	2
6	3.22.111.013	Aluminum wheel	1
7	4.11.026.003	Adjustable axle - electroplated	1

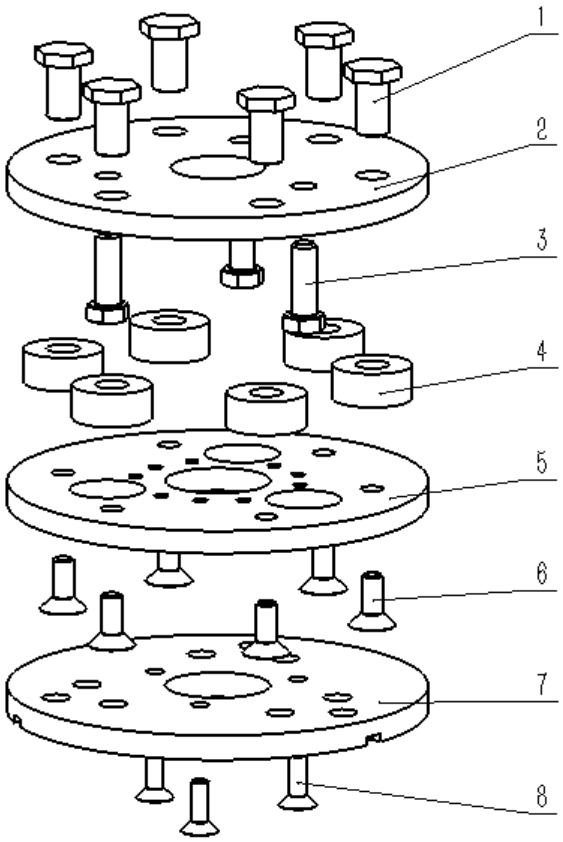
15.8 Gearbox and drive – 3 discs



Pos	Item no	Description	Pcs
1	4.11.017.159	Decorative engine cover - painted	1
2	3.11.111.082	Permanent magnet synchronous motor	1
3	3.22.128.002	Coupling	1
4	2.21.017.012	Motor mounting bracket - painted	1
5	3.22.113.004	Buffer sleeve	2
6	2.11.017.009	Gearbox cover welded - painted	1
7	3.13.112.005	Gearbox	1
8	3.22.116.006	Upper flange - electroplated	3
9	3.31.162.075	Grinding disc assembly	3

10	2.41.017.005	Spray nozzle	1
11	3.22.163.021	Oil cap	1

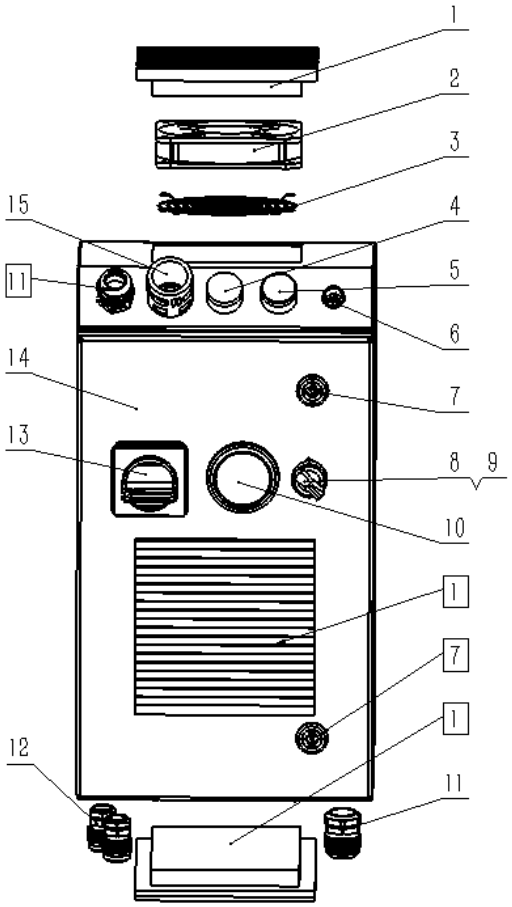
15.9 Grinding wheel assembly



Pos	Item no	Description	Pcs
1	4.11.054.014	Threaded sleeve - electroplated	6
2	4.11.017.145	Connecting plate	1
3	5.11.101.169	Hex head bolt	3
4	3.22.117.052	Rubber pad	6
5	4.11.017.144	Fixing plate	1
6	5.11.101.043	Flat-head hex socket screw	6

7	3.14.112.088	Round grinding disc	1
8	5.11.101.358	Flat-head hex socket screw	3

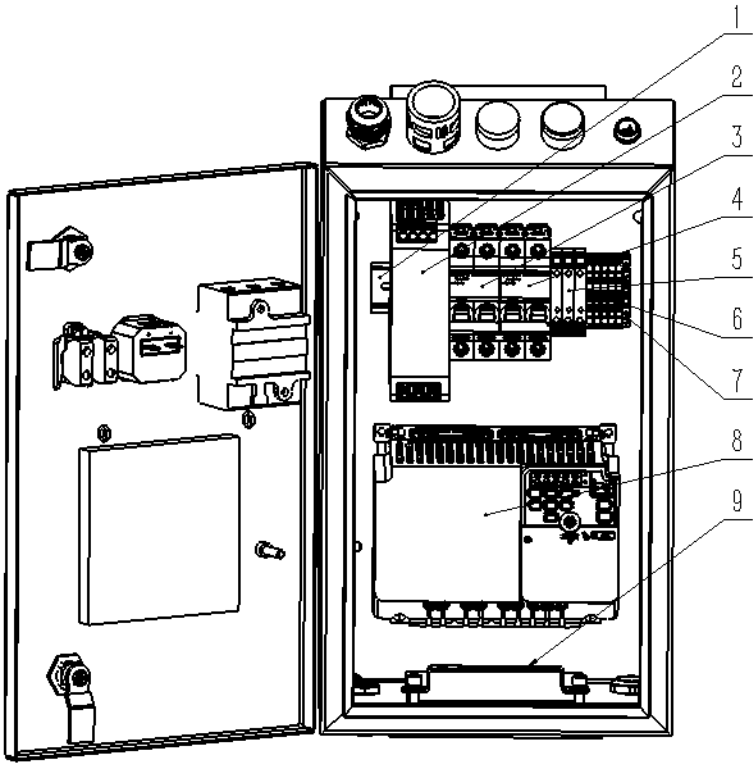
15.10 Components of the control cabinet



Pos	Item no.	Description	Pcs
1	3.21.115.002	Outer filter	3
2	3.21.115.008	Fan	1
3	3.21.115.004	Fan cover mesh	1
4	3.21.116.002	Green indicator light	1
5	3.21.116.001	Red indicator light	1

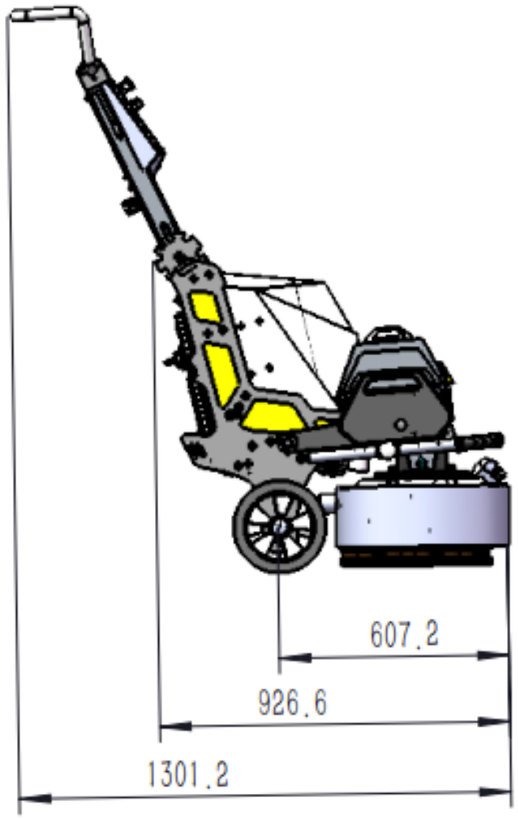
6	3.21.116.006	LED light socket	1
7	3.22.123.001	Cam lock	2
8	3.21.114.094	Two-position selector switch	1
9	3.21.114.095	Two-position selector switch base	1
10	3.21.119.001	Timer	1
11	5.11.110.029	Cable cover	2
12	5.11.110.001	Cable cover	2
13	3.21.114.114	Insulator switch	1
14	4.11.017.096	Electrical control box - painted	1
15	5.11.110.008	Cable cover	1

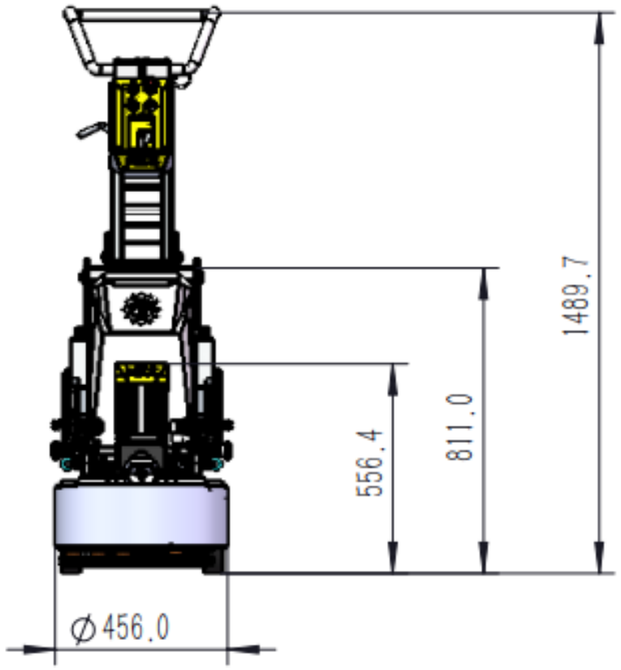
15.11 Internal electrical plate assembly

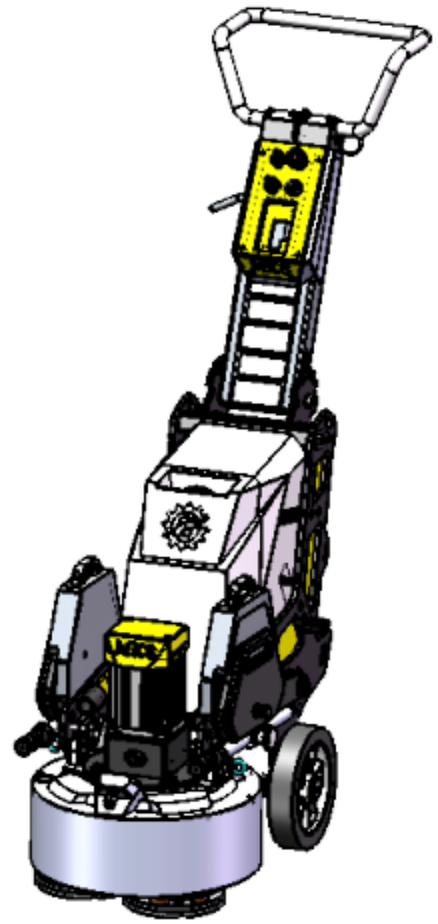


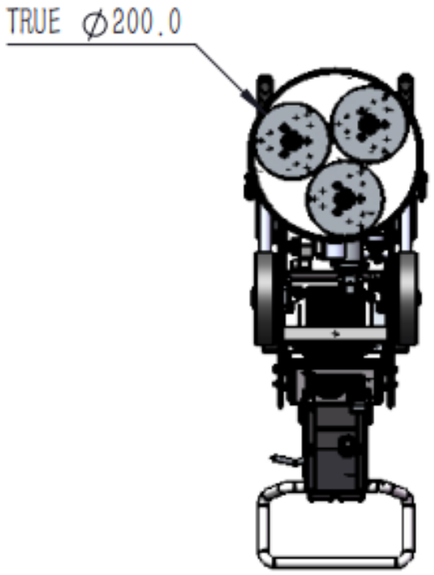
Pos	Item no	Designation	Pcs
1	3.23.116.001	Guide rail	1
2	3.21.111.004	Switching power supply	1
3	3.21.114.137	Circuit breaker	1
4	3.21.114.144	Circuit breaker	1
5	3.21.123.050	Fuse terminal	3
6	3.21.123.009	Terminal block	5
7	3.21.123.001	End clamp	1
8	3.12.111.065	Frequency inverter	1
9	3.21.201.023	Grounding busbar	1

A.017.00.0.007



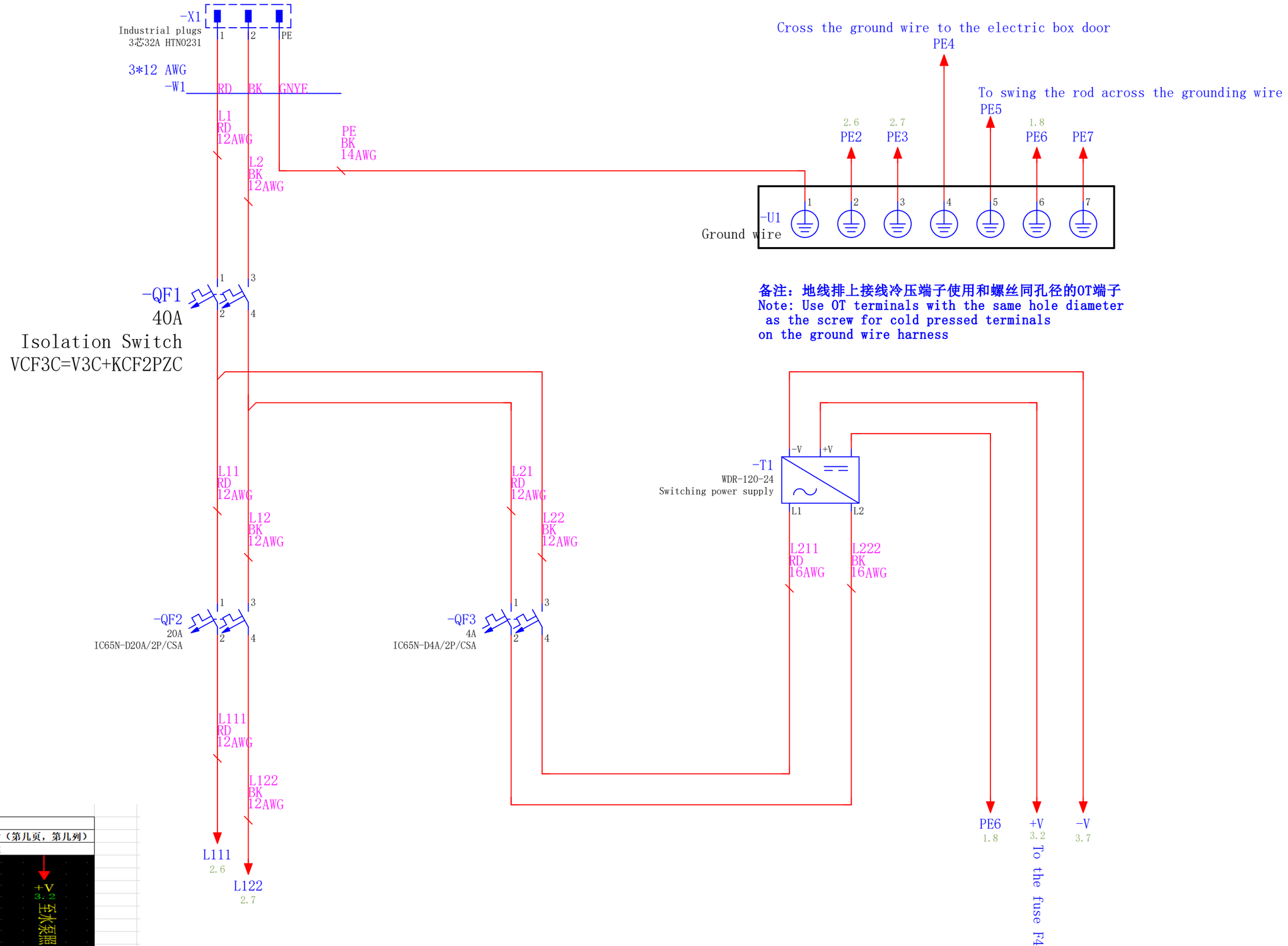






Part Number	
Interchangeable/Common Parts Registration	
Tracing	
Proofreading	
Old Master Drawing Number	
Master Drawing Number	
Signature	
Date	

A.017.00.0.007	
HTG-460 ULTRA	
Model	HTG-460 ULTRA

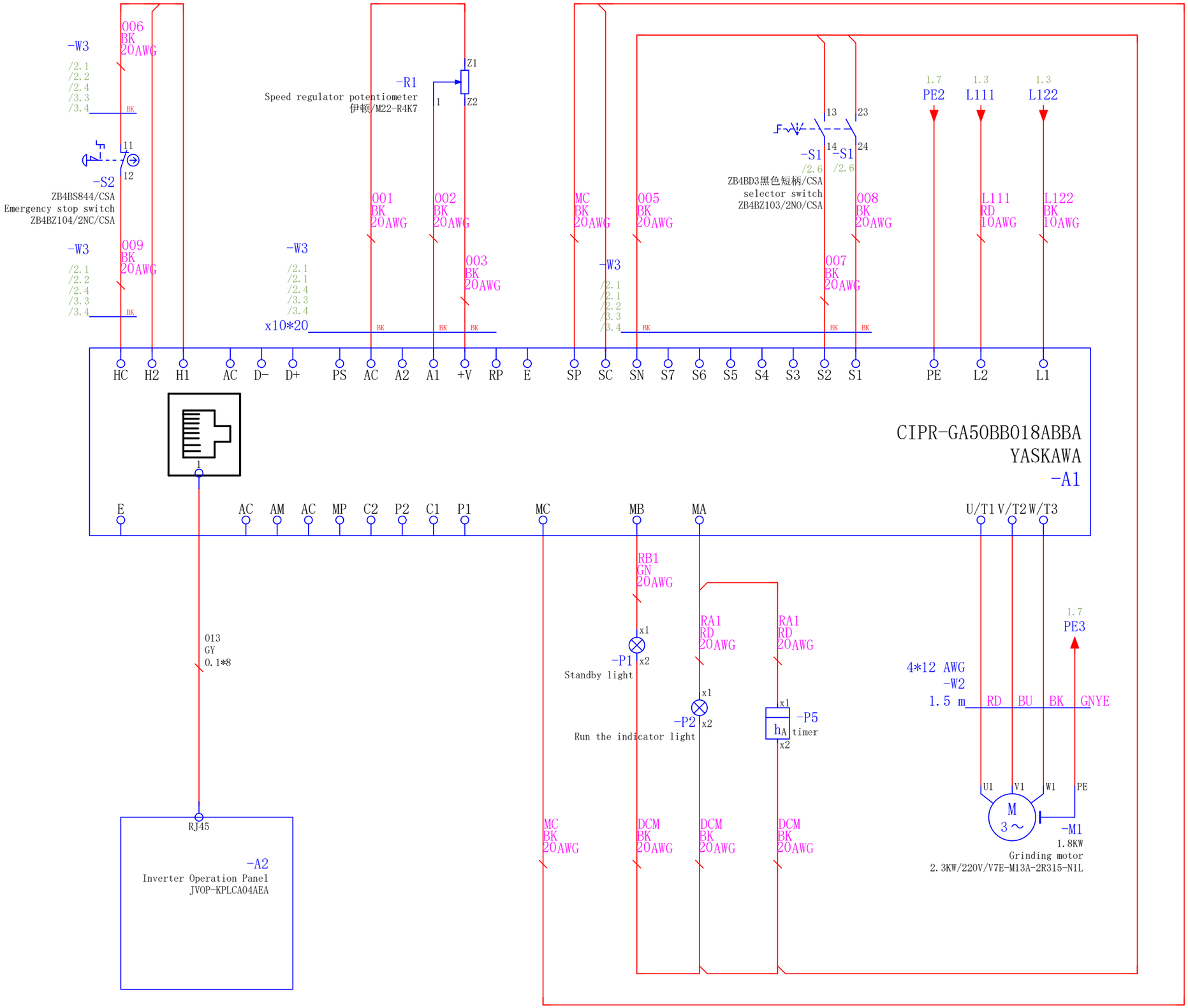


连接点定义：	线号	中断点定义：	中断点
	线颜色		关联参考（第几页，第几列）
	线径及单位		中断描述
例如：	L21 RD 12AWG	例如：	+V 3.2 至水泵照明

绘图	黄小明	绘图日期	2024/8/22	更改日期	2025/8/27
校对		校对日期			
审核		审核日期			
批准		批准日期			

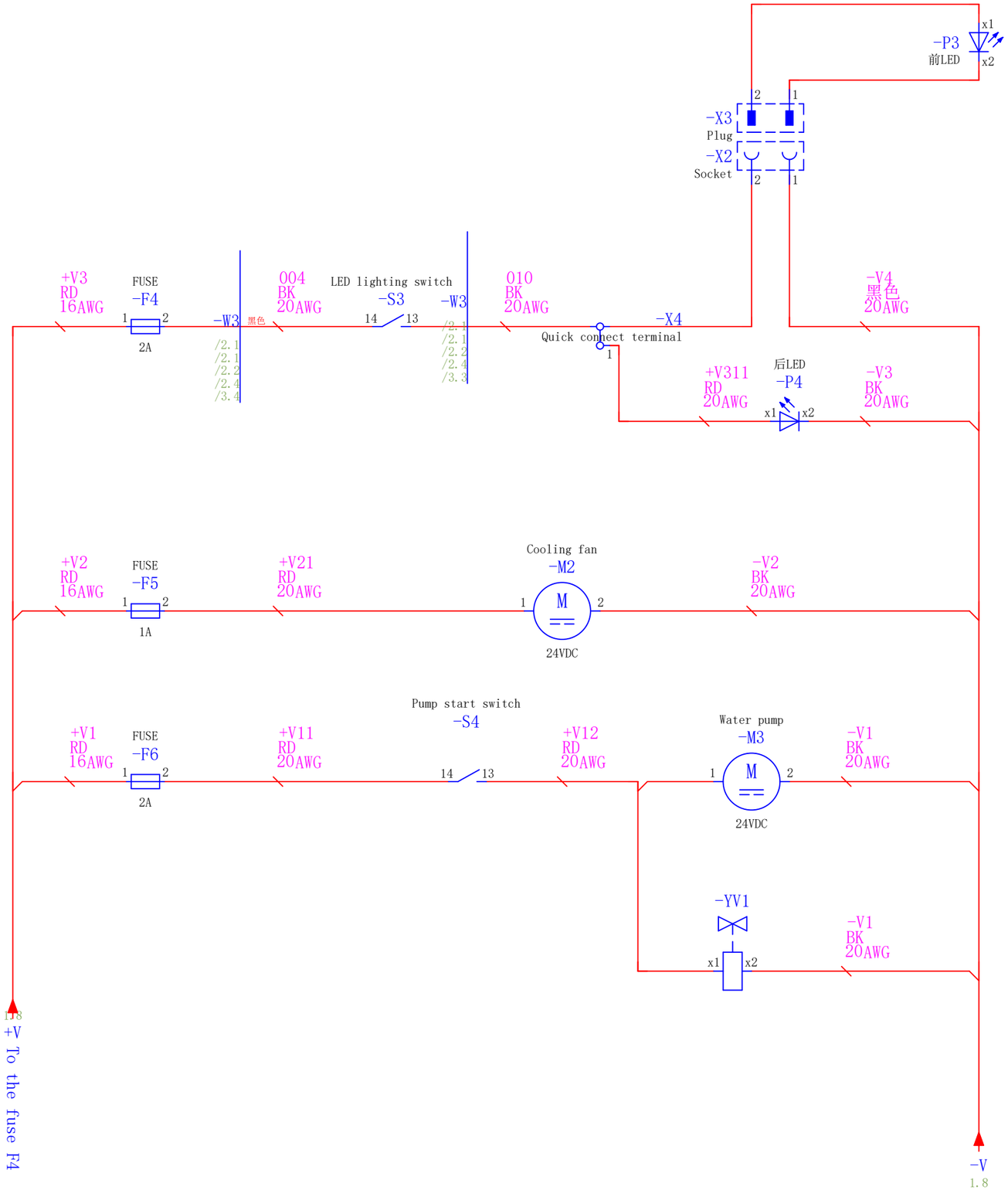
HTG-460 ULTRA研磨机-1P220V-2.2KW-YASKAWA GA500-CSA-V1.0.2-德国

交流输入电路	=	
	+	
IEC_tpl001	版本号：	当前页 1
		页 1/5



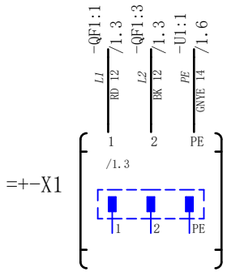
下一页 3

绘图	黄小明	绘图日期	2024/8/22	更改日期	2025/8/27	HTG-460 ULTRA研磨机-1P220V-2.2KW-YASKAWA GA500-CSA-V1.0.2-德国	变频器控制电路	=
校对		校对日期						+
审核		审核日期					IEC_tpl001	版本号:
批准		批准日期						当前页 2
								页 2/5

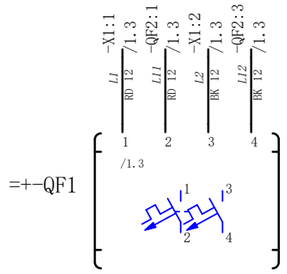


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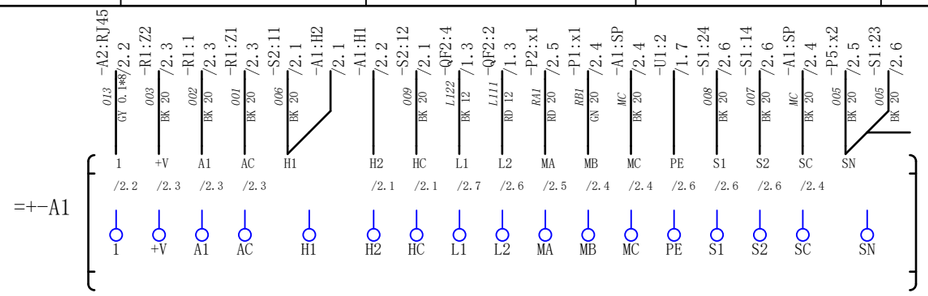
绘图	黄小明	绘图日期	2024/8/22	更改日期	2025/8/27	HTG-460 ULTRA研磨机-1P220V-2.2KW-YASKAWA GA500-CSA-V1.0.2-德国	外围控制电路	=
校对		校对日期						+
审核		审核日期					IEC_tp1001	版本号:
批准		批准日期						当前页 3
								页 3/5



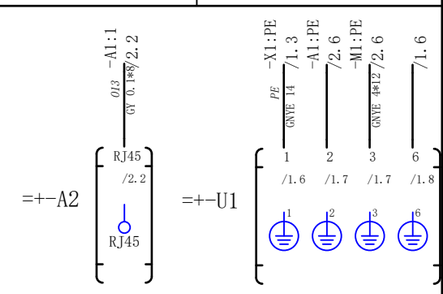
Industrial plugs



Isolation Switch

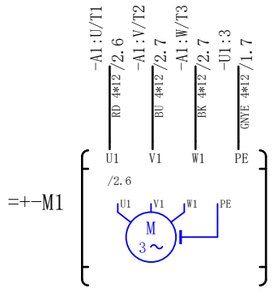


YASKAWA

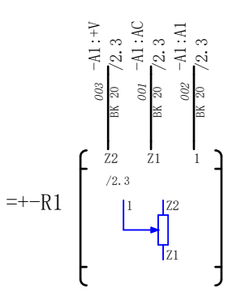


Inverter Operation Panel

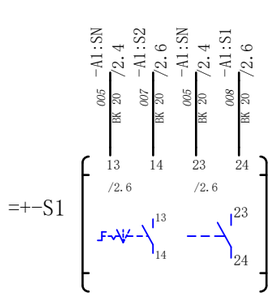
Ground wire



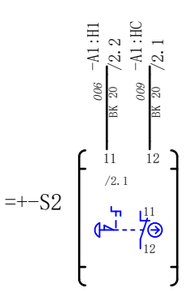
Grinding motor



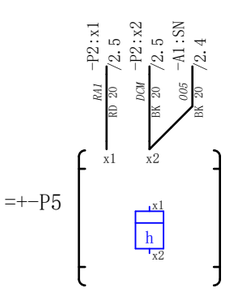
Speed regulator potentiometer



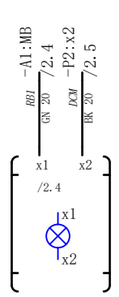
selector switch



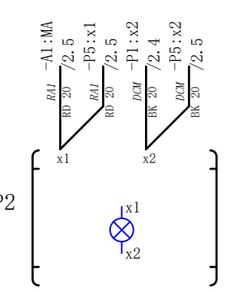
Emergency stop switch



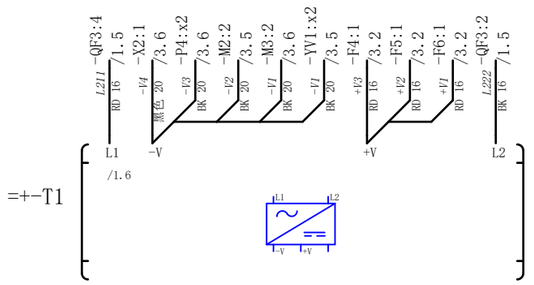
A timer



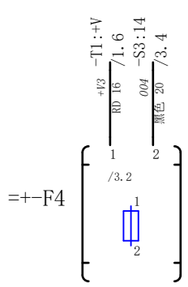
Standby light



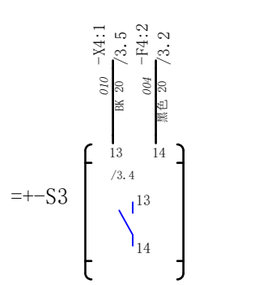
Run the indicator light



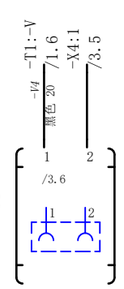
Switching power supply



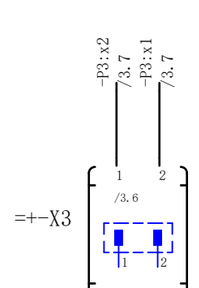
FUSE



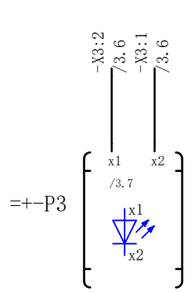
LED lighting switch



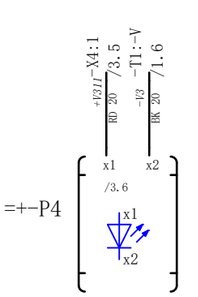
Socket



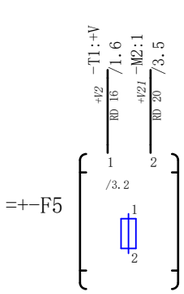
Plug



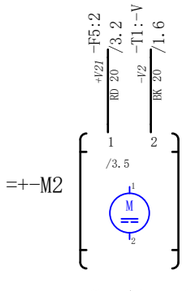
前LED



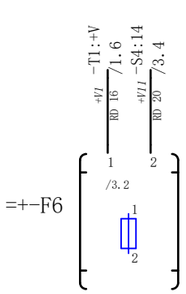
后LED



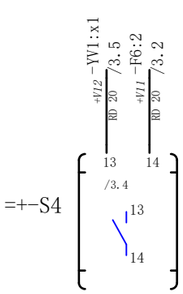
FUSE



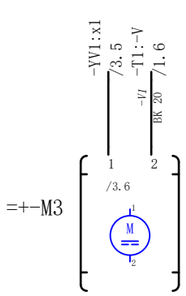
Cooling fan



FUSE



Pump start switch



Water pump

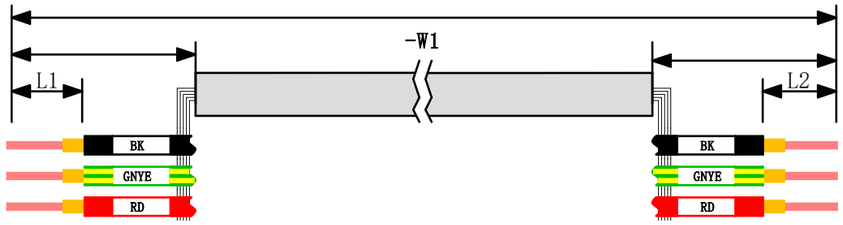
下一页 5

绘图	黄小明	绘图日期	2024/8/22	更改日期	2025/8/27	HTG-460 ULTRA研磨机-1P220V-2.2KW-YASKAWA GA500-CSA-V1.0.2-德国
校对		校对日期				
审核		审核日期				
批准		批准日期				

接线图	=	
	+	
IEC_tpl001	版本号:	当前页 4 页 4/5

电缆编号：=+-W1
电缆名称：
电缆规格：3*12 AWG

位置代号	源	源功能文本	压线端子	L1 [mm]	部件编号
	-QF1	Isolation Switch			
	-U1:1	Ground wire			
	-QF1	Isolation Switch			

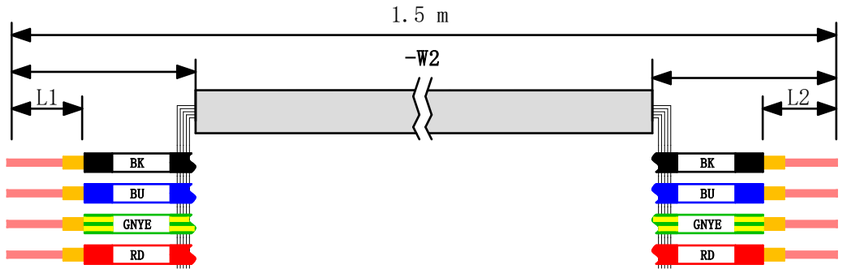


电缆部件
订货编号

部件编号	L2 [mm]	压线端子	目标功能文本	目标	位置代号
			Industrial plugs	-X1:2	
			=	-X1:PE	
			=	-X1:1	

电缆编号：=+-W2
电缆名称：
电缆规格：4*12 AWG

位置代号	源	源功能文本	压线端子	L1 [mm]	部件编号
	-M1	Grinding motor			
	=	=			
	=	=			
	=	=			

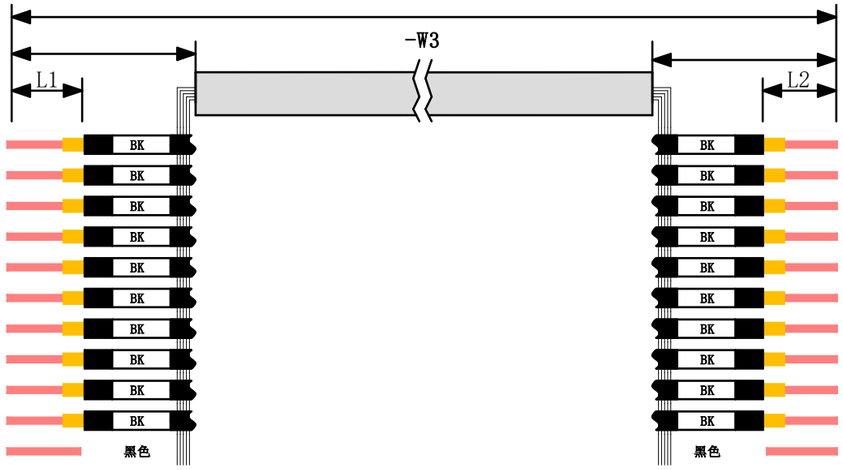


电缆部件
订货编号

部件编号	L2 [mm]	压线端子	目标功能文本	目标	位置代号
				-A1:W/T3	
				-A1:V/T2	
				-U1:3	
				-A1:U/T1	

电缆编号：=+-W3
电缆名称：
电缆规格：

位置代号	源	源功能文本	压线端子	L1 [mm]	部件编号
	-A1:H1				
	-A1:HC				
	-A1:AC				
	-A1:A1				
	-A1:+V				
	-A1:SN				
	=				
	=				
	-A1:S2				
	-A1:S1				
	-F4	FUSE			



电缆部件
订货编号

部件编号	L2 [mm]	压线端子	目标功能文本	目标	位置代号
			Emergency stop switch	-S2:11	
			=	-S2:12	
			Speed regulator	-R1:Z1	
			=	-R1:1	
			=	-R1:Z2	
			A timer	-P5:x2	
			selector switch	-S1:13	
				-S1:23	
			selector switch	-S1:14	
				-S1:24	
			LED lighting switch	-S3:14	

子部件的外部 - 100.604

4

			日期	2024/12/2	EPLAN	EPLAN Software & Service	电缆图表:W1 :W2 :W3	=
			校对	LENOVO	带 IEC 标准标识结构的项目模板:带有高层代号和位置代号的页结构			+
			审核					
修改	日期	姓名	原始项目		替换	替换人	IEC_tpl001	页数 5
								页 5/5

Notes

Notes

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	Im Fisserhook 7 D-46395 Bocholt
	Revision 1 11/28/2025

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