



USER MANUAL

BEDIENUNGSANLEITUNG
INSTRUKCJA OBSŁUGI
NÁVOD K POUŽITÍ
MANUEL D'UTILISATION
ISTRUZIONI PER L'USO
MANUAL DE INSTRUCCIONES
HASZNÁLATI ÚTMUTATÓ BRUGSANVISNINGENKEL
KÄYTTÖOHJE
GEBRUIKSAANWIJZING
BRUKSANVISNING
INSTRUÇÕES DE UTILIZAÇÃO
POUŽÍVATEĽSKÁ PRÍRUČKA
РЪКОВОДСТВО ЗА УПОТРЕБА
ΟΔ ΗΓΙΕΣ ΧΡΗΣΗΣ
UPUTE ZA UPORABU
NAUDOJIMO INSTRUKCIJA
MANUAL DE UTILIZARE
NAVODILA ZA UPORABO

DIAMOND CORE DRILL

DE	Produktname	Kernbohrmaschine
EN	Product name	Diamond core drill
PL	Nazwa produktu	Wiertnica diamentowa
CZ	Název výrobku	Diamantová jádrová vrtačka
FR	Nom du produit	Perceuse à noyau diamanté
IT	Nome del prodotto	Trapano a diamante per carotaggio
ES	Nombre del producto	Taladro de diamante para núcleos
HU	Termék neve	Gyémánt magfúró
DA	Produktnavn	Diamantkerneboremaskine
FI	Tuotteen nimi	Timanttiytimiporakone
NL	Productnaam	Diamantkernboormachine
NO	Produktnavn	Diamantkjernbor
SE	Produktnamn	Diamantkärnborr
PT	Nome do produto	Furadeira de diamante para núcleos
SK	Názov produktu	Diamantové jadrové vrtáky
BG	Име на продукта	Диамантена сондажна машина
EL	Όνομα προϊόντος	Διαμαντένιος πυρήνας τρυπανιού
HR	Naziv proizvoda	Dijamantna jezgra bušilica
LT	Produkto pavadinimas	Deimantinis šerdies grąžtas
RO	Numele produsului	Burghiu cu diamant pentru miez
SL	Ime izdelka	Diamantno jedrsko sveder
DE Modell EN Product model PL Model produktu CZ Model výrobku FR Modèle IT Modello ES Modelo HU Modell DA Model FI Tuotteen malli NL Productmodel NO Produktmodell SE Produktmodell PT Modelo do produto SK Model BG Модел на продукт EL Μοντέλο προϊόντος HR Model proizvoda LT : Gaminio modelis RO : Model de produs SL : Model izdelka		MSW-NNO-D45V1
DE Hersteller EN Manufacturer PL Producent CZ Výrobce FR Fabricant IT Produttore ES Fabricante HU Termelő DA Producent FI Valmistaja NL Producent NO Produsent SE Tillverkare PT Fabricante SK Výrobca BG Производител EL Κατασκευαστής HR Proizvođač LT Gamintojas RO Producător SL Proizvajalec		expondo Polska sp. z o.o. sp. k.
DE Anschrift des Herstellers EN Manufacturer Address PL Adres producenta CZ Adresa výrobce FR Adresse du fabricant IT Indirizzo del produttore ES Dirección del fabricante HU A gyártó címe DA Producentens adresse FI Valmistajan osoite NL Adres producent NO Produsentens adresse SE Tillverkarens adress PT Endereço do fabricante SK Adresa výrobcu BG Адрес на производителя EL : Διεύθυνση κατασκευαστή HR Adresa proizvođača LT Gamintojo adresas RO Adresa producătorului SL Naslov proizvajalca		ul. Nowy Kisielin – Innowacyjna 7, 66-002 Zielona Góra Poland, EU



This User Manual has been translated using machine translation. We have made every effort to ensure the translation is accurate, but please note that automated translations are not perfect and are not meant to replace human translators. The official version of the User Manual is in English. Any differences between the translated version and the original English are not legally binding. If you have any questions about the accuracy of the translation, please refer to the English version, which is the official reference. More language versions are available upon request via info@expondo.com.

1. Technical data

Table 1: Technical data of the product

Parameter description	Parameter value
Product name	Diamond core drill
Model	MSW-NNO-D45V1
Rated voltage [V~] / frequency [Hz]	230 / 50
Rated power [W]	3700
Max. drill diameter [mm]	450
Max. no-load speed [rpm]	200-340/460/890
Dimensions [width x depth x height; mm]	320 x 850 x 1050
Weight [kg]	38.8



2. General description










The user manual is designed to assist in the safe and trouble-free use of the device. The product is designed and manufactured in accordance with strict technical guidelines, using state-of-the-art technologies and components. Additionally, it is produced in compliance with the most stringent quality standards.

DO NOT USE THE DEVICE UNLESS YOU HAVE THOROUGHLY READ AND UNDERSTOOD THIS USER MANUAL.

To increase the product life of the device and to ensure trouble-free operation, use it in accordance with this user manual and regularly perform maintenance tasks. The technical data and specifications in this user manual are up to date. The manufacturer reserves the right to make changes associated with quality improvement. The device is designed to reduce noise emission risks to a minimum, taking into account technological progress and noise reduction opportunities.

2.1. Legend

Icon	Description
	The product satisfies the relevant safety standards.
	Read instructions before use.

	The product must be recycled.
	WARNING! or CAUTION! or REMEMBER! Applicable to the given situation. (general warning sign)
	Use ear protection. Exposure to loud noise may result in hearing loss.
	Wear protective goggles.
	Wear a dust mask (respiratory tract protection).
	Wear head protection.
	Wear foot protection.
	ATTENTION! Electric shock warning!
	Only use indoors.



PLEASE NOTE! DRAWINGS IN THIS MANUAL ARE FOR ILLUSTRATION PURPOSES ONLY AND IN SOME DETAILS MAY DIFFER FROM THE ACTUAL PRODUCT.

3. Usage safety



ATTENTION! READ ALL SAFETY WARNINGS AND ALL INSTRUCTIONS. FAILURE TO FOLLOW THE WARNINGS AND INSTRUCTIONS MAY RESULT IN ELECTRIC SHOCK, FIRE AND/OR SERIOUS INJURY OR EVEN DEATH.

The terms "device" or "product" are used in the warnings and instructions to refer to:

Diamond core drill

3.1. Electrical safety

- The plug must fit the socket. Do not modify the plug in any way. Using original plugs and matching sockets reduces the risk of electric shock.
- Avoid touching earthed elements such as pipes, heaters, boilers and refrigerators. There is an increased risk of electric shock if the earthed device is exposed to rain, comes into direct

contact with a wet surface or is operating in a damp environment. Water getting into the device increases the risk of damage to the device and of electric shock.

- c) Do not touch the device with wet or damp hands.
- d) Use the cable only for its designated use. Never use it to carry the device or to pull the plug out of a socket. Keep the cable away from heat sources, oil, sharp edges or moving parts. Damaged or tangled cables increase the risk of electric shock.
- e) If working with the device outdoors, make sure to use an extension cord suitable for outdoor use. Using an extension cord suitable for outdoor use reduces the risk of electric shock.
- f) If using the device in a damp environment cannot be avoided, a residual current device (RCD) should be applied. The use of an RCD reduces the risk of electric shock.
- g) Do not use the device if the power cord is damaged or shows obvious signs of wear. A damaged power cord should be replaced by a qualified electrician or the manufacturer's service centre.
- h) To avoid electric shock, do not immerse the cord, plug or device in water or other liquids. Do not use the device on wet surfaces.
- i) ATTENTION! DANGER TO LIFE! While cleaning, never immerse the device in water or other liquids.
- j) Do not use in very humid environments or in the direct vicinity of water tanks.
- k) Prevent the device from getting wet. Risk of electric shock!

3.2. Safety in the workplace

- a) Make sure the workplace is clean and well lit. A messy or poorly lit workplace may lead to accidents. Try to think ahead, observe what is going on and use common sense when working with the device.
- b) Do not use the device in a potentially explosive environment, for example in the presence of flammable liquids, gases or dust. The device generates sparks which may ignite dust or fumes.
- c) If you discover damage or irregular operation, immediately switch the device off and report it to a supervisor without delay.
- d) If you are unsure about whether the product is operating correctly or if you find damage, please contact the manufacturer's service centre.
- e) Only the manufacturer's service centre may make repairs to the product. Do not attempt to make repairs yourself!
- f) In case of fire, use a powder or carbon dioxide (CO₂) fire extinguisher (one intended for use on live electrical devices) to put it out.
- g) Children or unauthorised persons are forbidden to enter a work station. A distraction may result in loss of control over the device.

- h) Use the device in a well-ventilated space.
- i) The device produces dust and debris during operation. It is important to protect bystanders from their harmful effects.
- j) Regularly inspect the condition of the safety labels. If the labels are illegible, they must be replaced.
- k) Please keep this manual available for future reference. If this device is passed on to a third party, the manual must be passed on with it.
- l) Keep packaging elements and small assembly parts in a place not available to children.
- m) Keep the device away from children and animals.
- n) If this device is used together with another equipment, the remaining instructions for use shall also be followed.



REMEMBER! WHEN USING THE DEVICE, PROTECT CHILDREN AND OTHER BYSTANDERS.

3.3. Personal safety

- a) Do not use the device when tired, ill or under the influence of alcohol, narcotics or medication which can significantly impair the ability to operate the device.
- b) The machine may be operated by physically fit persons who are able to handle the machine, are properly trained, who have reviewed this operating manual and have received training in occupational health and safety.
- c) When working with the device, use common sense and stay alert. Temporary loss of concentration while using the device may lead to serious injuries.
- d) Use personal protective equipment as required for working with the device, specified in section 1 "Legend". The use of correct and approved personal protective equipment reduces the risk of injury.
- e) To prevent the device from accidentally switching on, make sure the switch is on the OFF position before connecting to a power source.
- f) Do not overestimate your abilities. When using the device, keep your balance and remain stable at all times. This will ensure better control over the device in unexpected situations.
- g) Do not wear loose clothing or jewellery. Keep hair, clothes and gloves away from moving parts. Loose clothing, jewellery or long hair may get caught in moving parts.
- h) If suction is to be connected to the device, check all connections and make sure they are tight. Using a dedusting system may reduce the risks associated with dust.
- i) Remove all adjusting tools or spanners before turning the device on. A tool or spanner left in the revolving part of the device may cause injury.

- j) The device is not a toy. Children must be supervised to ensure that they do not play with the device.
- k) Do not put your hands or other items inside the device while it is in use!

3.4. Safe device use

- a) Do not overload the device. Use the appropriate tools for the given task. A correctly-selected device will perform the task for which it was designed better and in a safer manner.
- b) Do not use the device if the "ON/OFF" switch does not function properly (does not switch the device on and off). Devices which cannot be switched on and off using the "ON/OFF" switch are hazardous, should not be operated and must be repaired.
- c) Make sure the plug is disconnected from the socket before attempting any adjustments, accessory replacements or before putting the product aside. Such precautions will reduce the risk of accidentally activating the device.
- d) When not in use, store in a safe place, away from children and people not familiar with the device who have not read the user manual. The device may pose a hazard in the hands of inexperienced users.
- e) Keep the device in perfect technical condition. Before each use check for general damage, especially check moving components for cracked parts or elements, and for any other conditions which may impact the safe operation of the device. If damage is discovered, hand over the device for repair before use.
- f) Keep the device out of the reach of children.
- g) Device repair or maintenance should be carried out by qualified persons, only using original spare parts. This will ensure safe use.
- h) To ensure the operational integrity of the device, do not remove factory-fitted guards and do not loosen any screws.
- i) When transporting and handling the device between the warehouse and the destination, observe the occupational health and safety principles for manual transport operations which apply in the country where the device will be used.
- j) Avoid situations where the device stops working during use due to excessive loading. This may result in overheating of the drive elements and damage to the device.
- k) Do not touch articulated parts or accessories unless the device has been disconnected from the power source.
- l) Do not move, adjust or rotate the device in the course of work.
- m) Do not leave this appliance unattended while it is in use.
- n) Clean the device regularly to prevent stubborn grime from accumulating.
- o) The specified vibrations emission was measured using standard measurement methods. Vibrations emissions may change if the device is used in different surroundings.

- p) Do not work on two workpieces at the same time.
- q) Only use air to supply the device, do not use any other gases.
- r) The device is not a toy. Cleaning and maintenance may not be carried out by children without supervision by an adult person.
- s) Do not run the device when empty.
- t) It is forbidden to interfere with the structure of the device in order to change its parameters or construction.
- u) Keep the device away from sources of fire and heat.
- v) Do not cover the ventilation openings!
- w) Keep the handle dry and free of oil and grease.



ATTENTION! DESPITE THE SAFE DESIGN OF THE DEVICE AND ITS PROTECTIVE FEATURES, AND DESPITE THE USE OF ADDITIONAL ELEMENTS PROTECTING THE OPERATOR, THERE IS STILL A SLIGHT RISK OF ACCIDENT OR INJURY WHEN USING THE DEVICE. STAY ALERT AND USE COMMON SENSE WHEN USING THE DEVICE.

4. Use guidelines

The product is designed for drilling through reinforced concrete, bricks, rock, ceramics, and refractory materials. It is ideal for use in equipment installation, plumbing and electrical work, tunnelling, and other construction and installation applications.

The product can be used only when mounted on a stand.

The user is liable for any damage resulting from unintended use of the device.

4.1. Device description

4.1.1. Function of oil immersion

The gear oil of the machine has good extreme-pressure properties. When the gear surfaces experience high friction temperatures during operation, a chemical reaction occurs that forms a metal film on the gear surface. This film has a high shear strength, which protects the gears from wear and significantly extends their service life.

The gear oil also provides high load-carrying capacity, offering effective protection to the gear teeth. It ensures reliable gear lubrication even at high operating temperatures.

In addition, the gear oil features good viscosity-temperature characteristics. This means that its viscosity changes very little with temperature fluctuations. As a result, it maintains good fluidity at low temperatures, ensuring that oil reaches the gear teeth and bearings to prevent friction damage. At high temperatures, the oil retains enough viscosity to form a thick, protective lubricating film.

4.2. Preparing for use

4.2.1. Appliance location

The temperature of environment must not be higher than 40°C and the relative humidity should be less than 85%. Ensure good ventilation in the room in which the device is being used. There should be at least 10 cm distance between each side of the device and the wall or other objects. The device should always be used when positioned on an even, stable, clean, fireproof and dry surface, and be out of the reach of children and persons with limited mental and sensory functions. Position the device such that you always have access to the power plug. The power cord connected to the appliance must be properly grounded and correspond to the technical details on the product label.

4.3. Assembling the device



NOTICE! MAKE SURE THE MOTOR SWITCH IS TURNED OFF BEFORE CONNECTING THE POWER SUPPLY.

Step 1: Unpacking and inspection

- 1) Unpack the machine and all accessories.
- 2) Check the contents against the packing list.
- 3) Ensure that the machine has not been damaged during transport.
- 4) Verify that the voltage on the tech plate matches your local power supply.
- 5) Confirm that all listed parts are present and undamaged.

Step 2: Electrical connection

According to European standards EN 61029-1 and IEC 1029-2-6, the electrical connection of diamond core drills with water supply must be made via a residual current device (RCD) and connected to a properly earthed socket.

The product is equipped with a Portable Residual Current Device (PRCD), which provides both RCD protection and undervoltage trip protection.

- After inserting the power plug into the socket, press the ON button on the PRCD to activate it.
- In the event of a voltage drop, the PRCD will switch off. You must press ON again once the power supply is restored.
- The rated residual operating current for the PRCD is 30 mA.



NOTICE!

- The PRCD must not come into contact with water.
- Regularly check the PRCD for proper functioning by pressing the TEST button.

- Never operate the machine without a working PRCD.

Step 3: Water connection

Use the included accessory "Quick connector" to connect the water hose to the water supply system.



NOTICE!

- Use only clean water. Dirty water will cause rapid seal wear.
- Maximum water pressure: 3 bar.

Step 4: Safety test

After switching on the motor, it will start softly (gradually). To test the PRCD:

- 1) Press the TEST button – the motor should stop immediately.
- 2) Press the RESET button to restore the power supply.



NOTICE!

- Do not operate the machine if the PRCD malfunctions.

4.4. Device use

4.4.1. Select suitable diamond drill bits

- Only use suitable, high-quality diamond tools.
- Use sharp tools, and ensure the diamond segments are sufficiently larger than both the inner and outer diameter of the drill bit tube.
- Apply water-resistant grease to the tool thread to make it easier to loosen after use.
- Make sure the radial run-out (eccentricity) of the diamond segments on the drill bit does not exceed 1 mm.

4.4.2. Fix the rig to the working place

There are three common fixing methods:

- Bolt fixing (most common)
- Vacuum fixing
- Bracing

Bolt fixing:

- Use metal bolts if possible.
- The bolt diameter must be at least 12 mm.

Vacuum fixing:

- Ensure the vacuum suction is sufficiently strong.
- Check that the sealing rings are not worn out.
- The rig should only be rigidly fixed when the sealing ring is properly compressed via the jack screws located at the base of the rig.

**NOTICE!**

The expansion bolts are recommended for use in fixing. The best fixing direction is along the column where the expansion bolt is installed.

4.4.3. Start drilling

- 1) Fix the drill bit securely.
- 2) Connect the power and water supply.
- 3) Move the adjusting tools as needed.
- 4) Switch on the drill machine without load (no contact with the surface).
- 5) Check the drill bit and listen for unusual sounds. If everything is normal, open the water tap.
- 6) The machine can start drilling once water flows from the drill bit.
- 7) Begin drilling slowly at first. When the drill bit has cut into the wall, increase to normal speed.
- 8) Slow down the feed speed when the drill bit encounters steel.

**NOTICE!**

- When operating the machine continuously, the speed should never drop below 65% of the no-load speed; otherwise, there is a risk of motor burnout.
- The drill machine has both mechanical and electronic protections.
- If the motor is running but the drill bit is not rotating, this indicates the drill bit may be dull or the feed speed is too fast. In this case, pull out the drill bit, sharpen it if needed, and re-feed it carefully.
- If the motor stops during drilling, stop the machine and reduce the feed speed before continuing.

4.4.4. Motor overload protection

After switching on, the motor starts softly (with a gradual increase in speed).

If the machine is overloaded, the motor's electronic control will switch to pulsating mode to warn the operator of the overload.

If the applied force is not reduced, the motor will shut off automatically after a few seconds.

To restart:

- Turn the machine off, then on again.
- The motor will once again start softly.
- Before restarting, ensure that the drill bit can rotate freely and is not jammed in the hole.

4.4.5. Integrated friction clutch

The machine is equipped with an integrated friction clutch to protect both the operator and the equipment from excessive mechanical overload. Please ensure that the release time of the clutch does not exceed 3–4 seconds, otherwise it may lead to increased wear and excessive heat generation.

4.4.6. Gear selection and shifting instructions

1) Gear selection

To improve drilling efficiency, the product is equipped with a four-stage gear transmission system, offering gear positions 1 through 4:

Figure 1: Gear positions 1 through 4



- **First gear (1–3 range):** Suitable for large drill bits and hard materials.
- **Second gear (1–4 range):** Suitable for medium to large drill bits and harder materials.
- **Third gear (2–3 range):** Ideal for medium to large drill bits and harder materials.
- **Fourth gear (2–4 range):** Suitable for small drill bits and softer materials.

2) Gear shifting instructions

- Always shift gears when the machine is stopped or coming to a stop.
- Ensure the gear is properly engaged. If the spindle does not rotate or abnormal noise occurs after startup, the gear may not be fully engaged.
 - In this case, switch off the machine immediately, then shift the gear into the correct position.
 - At the same time, gently rotate the spindle back and forth to assist proper gear engagement.
 - Do not shift gears when the machine is running at full speed, under overload, or when the spindle is stuck. This may cause damage to the gearbox or internal components.

4.4.7. Digital display and magnetic ring function (if applicable)

- 1) **Digital Display:** An LED display screen is equipped to show voltage, power, current, cumulative usage time, power factor, frequency, and temperature, providing real-time status of the machine.
- 2) **Magnetic Ring:** The magnetic ring contains five indicator lights arranged from left to right as yellow, green, green, green, and red.
 - The yellow light signals temperature protection; the three green lights indicate normal operation; the red light signals overload protection. When both red and yellow lights are on simultaneously, it indicates maintenance is required, specifically carbon brush replacement.
 - The magnetic ring controls constant speed and soft start, preventing speed drops to ensure stable power output.
 - During operation, the left green light lights up sequentially, and all three green lights illuminate once the load current reaches a certain level.
 - If the current nears the safe load limit, the red light flashes; when the limit is exceeded, the red light stays steadily on and the machine stops until the switch is turned off.
 - If the stator temperature becomes too high, the yellow light flashes; when the temperature reaches a safe level, the yellow light stays on steadily and the machine stops until the switch is turned off.

4.5. Cleaning and maintenance

4.5.1. General instructions

- a) Unplug the mains plug and allow the device to cool completely before each cleaning, adjustment or replacement of accessories, or if the device is not being used.
 - Wait for the rotating elements to stop.
- b) Always unplug the device before cleaning or putting it away.
- c) Use only non-corrosive cleaners to clean the surface.
- d) After cleaning the device, all parts should be dried completely before using it again.
- e) Store the unit in a dry, cool place, free from moisture and direct exposure to sunlight.
- f) Do not spray the device with a water jet or submerge it in water.
- g) Keep the ventilation slots clear at all times.
- h) Clean and grease the spindle thread regularly.
- i) Clean the machine using a dry or slightly damp cloth—do not with a jet of water. Ensure that no moisture enters the motor or switch box.
- j) The device must be regularly inspected to check its technical efficiency and spot any damage.

- k) Do not use sharp and/or metal objects for cleaning (e.g. a wire brush or a metal spatula) because they may damage the surface material of the appliance.
- l) Do not clean the device with an acidic substance, agents of medical purposes, thinners, fuel, oils or other chemical substances because it may damage the device.



IMPORTANT!

- If gear oil leaks, stop the machine immediately. Oil leakage can cause damage to the gears.
- If water leaks from the overflow hole on the water connection ring, the rotary shaft seals must be replaced immediately. This repair should only be performed by an authorized specialist workshop.

4.5.2. Oil-bath gear maintenance

After the initial 300 hours of operation, the gear oil needs to be replaced. This should ideally be done by a qualified service centre. If you choose to do it yourself:

- a) Secure the machine upright in a vice, remove the three hex socket screws, and detach the motor and intermediate cover.
- b) Replace the gear oil using only the specified original oil.
- c) When reassembling, reverse the disassembly steps and make sure the shim ring is correctly placed on the front shaft.

4.5.3. Carbon brushes maintenance

The carbon brushes should be inspected for wear after approximately 300 hours of operation and replaced if necessary. As with all motor-related maintenance, this task should only be carried out by a qualified electrician.

4.5.4. Disposing of used devices

Do not dispose of this device in municipal waste systems. Hand it over to an electric and electrical device recycling and collection point. Check the symbol on the product, instruction manual and packaging. The plastics used to construct the device can be recycled in accordance with their markings. By choosing to recycle you are making a significant contribution to the protection of our environment.

Contact local authorities for information on your local recycling facility.

4.5.5. Troubleshooting

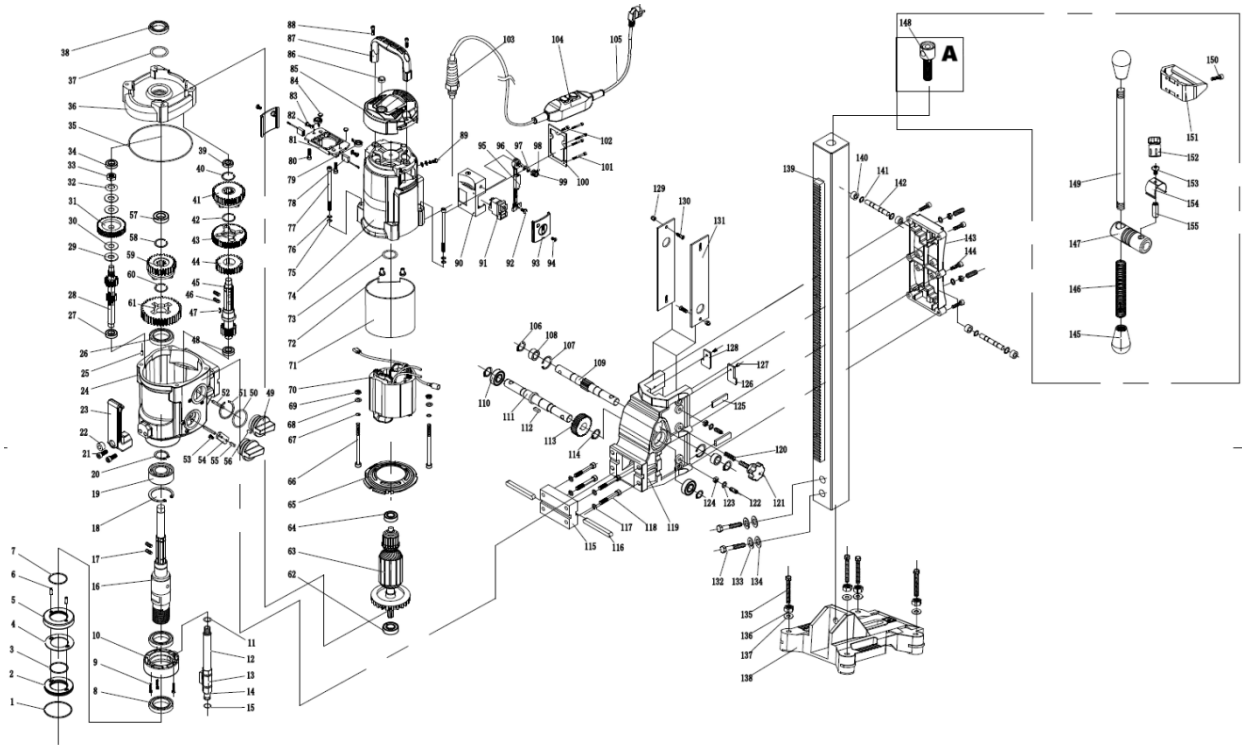
Table 2: Troubleshooting

Problem	Possible Cause	Solution
The generator does not start.	The power supply is blocked or loose connections.	1. Check and restore the power supply. 2. Inspect all connections and tighten them.
	Carbon brushes are worn out or not contacting the commutator.	Replace the carbon brushes.

	The leakage protector was triggered but did not reset.	Press the reset button to restart the generator.
	The leakage protector is damaged.	Replace the leakage protector.
Drilling speed is too slow.	The bit has reached the end of its lifespan.	Replace the drill bit.
	Insufficient feed pressure.	Increase feed pressure.
	The drill bit is clogged with debris.	1. Clean the bit. 2. Increase hydraulic pressure.
	The rotational speed is too high.	Switch to a lower speed setting.
	It is difficult to cut through thick reinforcing bars.	1. After the slight reduction in feed pressure. 2. Apply cross-reinforcement bar drilling technique. 3. Increase the feed pressure again.
	Excess debris accumulation in the hole.	1. Clear debris from the bottom of the hole. 2. Apply pressurization.
	Electrical current is unstable, there is leakage or no return flow.	Inspect the water valve and check the electrical current.
	The drill bit has become dull.	Sharpen the bit using fire-resistant brick or energy wheel.
The drill bit gets stuck.	Broken pieces of the bit or reinforcing bar are lodged between the bit and the hole wall.	1. Stop the machine. 2. Rotate the drill bit in reverse. 3. Gently tap the bit to dislodge the broken piece.
	The frame is not securely fixed, leading to displacement.	Recheck and adjust the gap of the sliding sleeve.
Rapid wear of the drill bit wall.	Misalignment of the main shaft.	Repair or replace the main shaft.
	The drill bit is not properly aligned.	Replace the drill bit.
	Reinforcing bars or thin debris are obstructing the hole and cannot be removed.	1. Improve current flow. 2. Remove the drill bit. 3. Clean the hole.
Water leakage in the water supply system.	The sealing ring is worn out or aged.	Replace the sealing ring.

4.6. Parts list

Figure 2: Spare parts list



A- Optional

Table 3: Spare parts list

Part number	Description	Number of pieces	Specification
1	O-ring	1	ø52*1.5
2	Inner balance ring	1	-
3	O-ring	1	ø34*1.5
4	Needle roller washer	1	32*52*1
5	Outer balance ring	1	-
6	Cylindrical pin	2	ø4*12
7	O-ring	1	ø34*1.5
8	Oil seal	2	40*50*7
9	Hex socket screw	3	M4*30
10	Water ring	1	-
11	O-ring	2	ø15*1.5
12	Hose	1	-
13	Mini ball valve	1	-
14	Faucet connector	1	-
15	O-ring	1	ø12*2.5
16	Spindle	1	-
17	Ball plunger	2	M8*15
18	Internal snap ring	1	ø52
19	Bearing	1	3205
20	External snap ring	1	ø25
21	Hex socket screw	2	M5*25
22	Level	1	ø14.8*5.6
23	Handle	1	-
24	Gearbox	1	-
25	Cylindrical pin	1	ø4*12

26	Oil seal	1	25*45*7
27	Bearing	1	6201
28	Grade I gear shaft	1	-
29	Milling tool holder washer	2	-
30	Clutch disc	2	-
31	Grade I gear	1	-
32	Arc spring washer	1	-
33	Nut	1	-
34	Bearing	1	6200
35	O-ring	1	ø130*2.0
36	Middle cover	1	-
37	O-ring	1	ø34.5*2.65
38	Oil seal	1	15*21*3
39	Bearing	1	6201
40	Retaining ring	1	ø18
41	Grade II sliding gear	1	-
42	Retaining ring	1	ø18
43	Grade II gear	1	-
44	Grade II transmission gear	1	-
45	Grade II gear shaft	1	-
46	Ball plunger	2	M8*15
47	Square pin	1	5*10
48	Bearing	1	6202
49	Knob	2	-
50	O-ring	2	ø35*2.4
51	Retaining ring	2	ø35
52	Cylindrical pin	2	ø5*30
53	Hex socket screw	1	M4*10
54	Shifting plate	1	-
55	Limit pin	1	M5*15
56	Cylindrical pin	2	ø2*10
57	Bearing	1	6202
58	External snap ring	1	ø19
59	Spindle high-speed gear	1	-
60	Wire clamp	1	Outer Diameter 20.5*1.2
61	Spindle low-speed plate	1	-
62	Bearing	1	6202
63	Rotor	1	-
64	Bearing	1	6201
65	Windshield ring	1	-
66	Hex socket screw	2	M5*105 (half tooth)
67	Flat washer	2	M5
68	Spring washer	2	M5
69	Lock nut	2	M5
70	Stator	1	-
71	Liner	1	-
72	Insulation sleeve	2	-
73	O-ring	1	ø38*3.1
74	Stator shell	1	-

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75	Flat washer	4	M6
76	Spring washer	4	M6
77	Hex socket screw	4	M6*105 (half tooth)
78	Carbon brush	1	-
79	Spiral spring	2	-
80	Hex socket screw	2	M5*16
81	Brush holder	1	-
82	Wave washer	2	M4
83	Pan head Phillips screw	2	M4*8
84	Hex socket dust plug	2	M5
85	Top cover	1	-
86	Level	1	ø18*8
87	Handle	1	-
88	Hex socket screw	2	M6*40 (half tooth)
89	Combination screw	1	M4*10
90	Switch box	1	-
91	Switch	1	-
92	Pan head Phillips screw	1	M4*10
93	Brush cover	2	-
94	Hex socket screw	2	M4*10
95	Speed regulator	1	-
96	Flat washer	1	M10
97	Thin nut	1	M10
98	Slotted flat point set screw	1	M3*5
99	Speed control knob	1	-
100	Switch box cover	1	-
101	Hex socket screw	4	M4*50 (half tooth)
102	Hex socket screw	1	M4*25
103	Anti-bending joint	1	M16*1.5
104	Leakage protector	1	-
105	Power cable	1	3*2.0*4.0 m
106	External snap ring	4	ø16
107	Internal snap ring	2	ø26
108	Bronze sleeve	2	17*26*12
109	Lift shaft	1	-
110	Bearing	2	6003
111	Lift shaft	1	-
112	Square pin	1	6*18
113	Lift gear	1	-
114	External snap ring	1	ø18
115	Aluminium block	1	100*70*60
116	Square pin	2	10*10*95
117	Flat washer	4	M8
118	Hex socket screw	4	M8*95 (half tooth)
119	Lifter	1	-
120	Spring	1	-
121	Bakelite star knob	1	M8*30
122	Hex socket set screw with flat end	4	M8*25
123	Flat washer	4	M8

124	Nut	4	M8
125	Adjustment iron plate	2	-
126	Right angle slide	2	-
127	Phillips flat head machine screw	4	M4*8
128	Right angle slide	2	-
129	Cap nut	4	M5
130	Phillips flat head machine screw	4	M5*18
131	Large slide	2	-
132	Hex bolt	2	M14*80 (half tooth)
133	Spring washer	2	M14
134	Flat washer	2	M14
135	Hex bolt	4	M14*80 (full tooth)
136	Nut	4	M14
137	Flat washer	4	M14
138	Base - consumption	1	-
139	Iron square bar	1	59*59*1000 Decoration Chrome
140	Roller	4	-
141	External snap ring	4	ø10
142	Roller shaft	2	-
143	Cover plate	1	-
144	Hex socket screw	6	M6*25
145	Ball handle	2	M12
146	Spring	1	-
147	Connecting rod	1	-
148	Tip	1	-
149	Feed handle	1	-
150	Hex socket screw	4	M6*16
151	Handle	1	-
152	Yellow quick plug	1	-
153	Stainless steel large flat head screw	1	M5*8
154	Quick-release clip	1	-
155	Fixed pin	1	ø8*36

Umwelt – und Entsorgungshinweise

Hersteller an Verbraucher

Sehr geehrte Damen und Herren,

gebrauchte Elektro – und Elektronikgeräte dürfen gemäß europäischer Vorgaben **[1]** nicht zum unsortierten Siedlungsabfall gegeben werden, sondern müssen getrennt erfasst werden. Das Symbol der Abfalltonne auf Rädern weist auf die Notwendigkeit der getrennten Sammlung hin. Helfen auch Sie mit beim Umweltschutz. Sorgen Sie dafür, dieses Gerät, wenn Sie es nicht mehr weiter nutzen wollen, in die hierfür vorgesehenen Systeme der Getrenntsammlung zu geben.



In Deutschland sind Sie gesetzlich **[2]** verpflichtet, ein Altgerät einer vom unsortierten Siedlungsabfall getrennten Erfassung zuzuführen. Die öffentlich – rechtlichen Entsorgungsträger (Kommunen) haben hierzu Sammelstellen eingerichtet, an denen Altgeräte aus privaten Haushalten ihres Gebietes für Sie kostenfrei entgegengenommen werden. Möglicherweise holen die rechtlichen Entsorgungsträger die Altgeräte auch bei den privaten Haushalten ab.

Bitte informieren Sie sich über Ihren lokalen Abfallkalender oder bei Ihrer Stadt – oder Gemeindeverwaltung über die in Ihrem Gebiet zur Verfügung stehenden Möglichkeiten der Rückgabe oder Sammlung von Altgeräten.

[1] RICHTLINIE 2002/96/EG DES EUROPÄISCHEN PARLAMENTS UND DES RATES
ÜBER ELEKTRO – UND ELEKTRONIK – ALTGERÄTE

[2] Gesetz über das Inverkehrbringen, die Rücknahme und die umweltverträgliche Entsorgung
von Elektro – und Elektronikgeräten (Elektro – und Elektronikgerätegesetz – ElektroG).

Utylizacja produktu

Produkty elektryczne i elektroniczne po zakończeniu okresu eksploatacji wymagają segregacji i oddania ich do wyznaczonego punktu odbioru. Nie wolno wyrzucać produktów elektrycznych razem z odpadami gospodarstwa domowego. Zgodnie z dyrektywą WEEE 2012/19/UE obowiązującą w Unii Europejskiej, urządzenia elektryczne i elektroniczne wymagają segregacji i utylizacji w wyznaczonych miejscach. Dbając o prawidłową utylizację, przyczyniasz się do ochrony zasobów naturalnych i zmniejszasz negatywny wpływ oddziaływania na środowisko, człowieka i otoczenie. Zgodnie z krajowym prawodawstwem, nieprawidłowe usuwanie odpadów elektrycznych i elektronicznych może być karane!

For the disposal of the device please consider and act according to the national and local rules and regulations.

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