



KERNLOCHBOHRER[®]
.COM



Operating instructions

MKB-35HD MKB-50HD

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Version 0 3rd edition 01/2022

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Operating instructions

WARNING

The magnetic drilling machines in the MKB series are intended for professional use and may only be operated by trained personnel. Strictly adhere to the instructions in the operating manual to avoid electric shock or fire.

Our company accepts no responsibility for any violations of the operating instructions that may result in injury or damage to the machine.

In conjunction with the appropriate core drills, the machine is designed for drilling in all magnetic metals.

The machine may only be serviced by persons who have the appropriate qualifications and certification.

THANKS TO THE PURCHASER

Thank you for purchasing an MKB series magnetic drill from Kernlochbohrer GmbH. Please read the operating instructions and observe the safety instructions. By operating the machine correctly, you will fully appreciate the outstanding performance of our products. Keep this manual in a safe place for future reference. If you have any questions about the operation of the magnetic drilling machine, please contact Kernlochbohrer GmbH directly. We are available to answer your questions at any time.

ABOUT THIS MANUAL

This operating manual is for the models

MKB-35HD

MKB-50HD

Check the machine model on the type plate.



SAFETY REGULATIONS

- ❖ Read all precautions before use and keep the operating instructions.
 - ❖ Please follow the operating instructions carefully, as failure to comply with these safety precautions and instructions may result in electric shock, fire and/or serious injury.
1. Keep your work area clean and well lit. Cluttered or dark work areas can lead to accidents.
 2. Do not operate the power tool in potentially explosive environments where flammable liquids, gases or dust are present. Power tools generate sparks that can ignite dust or vapours.
 3. Keep children and other people away from the power tool during use. If you become distracted, you may lose control of the tool.

4. Stay alert, concentrate and pay attention to what you are doing. Do not use power tools when you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while using a power tool can result in serious injury.
5. Wear suitable protective equipment and always wear safety goggles. Wearing suitable protective equipment such as a dust mask, non-slip safety shoes, gloves, a safety helmet or ear protection reduces the risk of injury.



6. Avoid unintentional starting of the machine. Ensure that the power tool is switched off before connecting it to the power supply. Carrying the power tool with your finger on the switch or connecting the device to the power supply while it is switched on can lead to accidents.
7. Remove any adjustment tools or Allen keys before switching on the power tool. A tool or Allen key left in a rotating device can cause injury.
8. Avoid awkward body positions. Keep your footing secure and maintain your balance at all times. Do not work on a ladder. This will allow you to better control the power tool in unexpected situations.
9. Wear suitable clothing. Do not wear loose clothing or jewellery. Keep hair, clothing and gloves away from moving parts. Loose clothing, jewellery or long hair can be caught in moving parts.

10. Do not overload the device. Use the power tool that is suitable for your work. With the right power tool, you will work better and more gently within the specified power range.
11. Do not use a power tool with a damaged switch. A power tool that cannot be switched on and off is dangerous and must be repaired.
12. Unplug the power cord from the power outlet before making any adjustments, changing accessories or putting the device aside. This safety measure prevents the power tool from starting accidentally.
13. Store unused power tools out of the reach of children. Do not allow persons unfamiliar with the tool or these instructions to use it. Power tools are dangerous when used by inexperienced persons.
14. Note that the voltage must not exceed +5% of the rated voltage. Higher voltages can cause irreparable damage. Note that when operating the machine via a generator, no higher voltage peaks are generated.

PRODUCT DESCRIPTION

The magnetic drill is an electric tool for fastening and drilling on horizontal and vertical surfaces as well as overhead. Ideal for use in steel construction, industrial construction, mechanical engineering, plant construction, shipbuilding, bridge construction, crane construction and for assembly work in metalworking shops. With our magnetic drilling machines, you can drill large steel workpieces and all magnetic metals. The machine is very easy to use and flexible in application. Using a machine from the MKB series can reduce the amount of work required and improve machining precision and work efficiency.

The magnetic drilling machines of the MKB series combine numerous advantages in one machine: their small size and low weight make them particularly efficient to work with and easy to transport. The magnetic drilling machines have a built-in cooling system, a soft start, electronic, infinitely variable speed control and overload protection. All this makes the MKB series magnetic drilling machines a device with consistent and superior performance and maximum safety for the user.

TECHNICAL DATA

Model	Drilling diameter (mm)	Mains voltage (V)	Power consumption	Max. tightening force (N)	Idle speed (rpm)	Net/gross weight (kg)
MKB-35HD	35	230 ~	1550	14800	100-830	12/15
MKB-50HD	50	230	1700	15600	100-810	13/16

In order to continuously improve the product, our company reserves the right to change the technical data without prior notice.

MKB-35HD



- | | |
|------------------------|---------------------------|
| 1. Air intake cover | 9. Drill lever |
| 2. Electric motor | 10. Carrying handle |
| 3. Intermediate flange | 11. On/off switch Drill |
| 4. Gear | 12. On/off switch Magnet |
| 5. Drill spindle | 13. Carriage |
| 6. Coolant tank | 14. Power connection |
| 7. Cable routing | 15. Magnetic base/magnets |
| 8. Spirit level | |

MKB-50HD



1. Air intake cover

2. Electric motor

3. Intermediate flange

4. Gearbox

5. Sled

6. Drill spindle

7. Coolant tank

8. Cable guide

9. Spirit level

10. Drill lever

11. Carrying handle

12. On/off switch Drill

13. On/off switch Magnet

14. Power connection

15. Magnetic base/magnet

PRECAUTIONS

1. Read the manual carefully before use to understand the structure and operation of the magnetic drill (electromagnetic chuck, drill itself and gear function).
2. Before installing or removing a magnetic drill, ensure that the motor switch is turned off and the mains plug is disconnected.
3. After mounting and tightening the drill, the wrench must be removed.
4. Ensure that you use a sharp and suitable drill bit.
5. Ensure that the work surface is flat and at least equal to the base area of the magnet. The base area must consist of a magnetisable and clean material that is at least 10 mm thick.
6. Ensure that the power cord is not near the drill.
7. Ensure that both the motor switch and the magnetic switch are turned off.
8. The magnetic drilling machines are equipped with a coolant tank. The coolant tank is attached to the frame of the magnetic drilling machine with two screws. Only use an oil-water mixture that is available from specialist retailers. After use, the drill spindle must be cleaned to prevent subsequent corrosion. To allow the coolant to flow through the machine, the centring pin must be inserted in the crown drill.
9. The use of the magnetic drill equipped with an electromagnet or permanent magnet in an inclined or vertical position on steel components is only permitted if the magnetic drill has been secured with the safety belt included in the scope of delivery. In the event of a power failure or excessive load, the magnetic holding force is not maintained. The magnetic drill may fall and cause accidents.

10. Non-magnetic materials cannot be drilled with the magnetic drill. A drill with a vacuum base must be selected for drilling non-magnetic materials.
11. You cannot use an electric welding machine and a magnetic drill on the same piece of sheet steel at the same time, as there is a risk of electric shock.
12. Continuous operation of the magnetic drill for more than 2 to 3 hours is not permitted.



WARNING!

Strong magnet!

Persons with pacemakers or other medical implants must not use the magnetic drill. Carrying metal parts and watches is prohibited.



WARNING!

Risk of falling due to sudden pendulum movement of the magnetic drill!

When working on scaffolding, the magnetic drill may perform a sudden pendulum movement when starting up or in the event of a power failure. Secure the magnetic drill with the safety belt provided.



CAUTION!

Unplug the power cord from the socket before making any adjustments to the magnetic drill or changing accessories. Accidental starting of the drill can lead to accidents.



CAUTION!

Observe the inspection interval for load-bearing equipment specified by your professional association! The safety belt supplied with the magnetic drill is a load-bearing device and must be inspected regularly.

SAFETY CHECK

Check the magnetic drill before switching it on or at least once per shift. Report any damage, defects or changes in operating behaviour to the responsible manager immediately.

Check all safety devices

- at the beginning of each shift (in the case of intermittent operation),
- once a week (during continuous operation),
- after each maintenance and repair.

Check that the prohibition, warning and information signs and markings on the magnetic drill

- are legible (clean if necessary)
- complete (replace if necessary).

SAFETY DURING OPERATION



WARNING!

Before switching on the magnetic drill, ensure that

- no danger to persons and
- no damage is caused to property.

Refrain from any unsafe working practices:

- Ensure that your work does not endanger anyone.
- Always follow the instructions in this operating manual during installation, operation, maintenance and repair.
- Do not work on the magnetic drill if your ability to concentrate is impaired for any reason, e.g. due to the influence of medication.
- Observe the accident prevention regulations of the relevant professional association or other supervisory authorities.
- Remain at the magnetic drill until it has come to a complete standstill.
- Do not leave magnetic drilling machines with electromagnets magnetised and unattended at the workplace.
- Use the prescribed personal protective equipment. Wear close-fitting clothing and, if necessary, a hair net.

ELECTRICAL SAFETY

Have the electrical machine/equipment checked regularly. Have any defects, such as loose connections, damaged cables, etc., repaired immediately.

A second person must be present when working on live parts and must be able to switch off the power in an emergency. Switch off the magnetic drill immediately in the event of a power failure!

Observe the required inspection intervals in accordance with the Industrial Safety Regulation and equipment inspection.

The operator of the machine must ensure that the electrical systems and equipment are checked to ensure they are in proper working order, namely

- before initial commissioning, before recommissioning and after any modification or repair by a qualified electrician in accordance with VDE or under the supervision of a qualified electrician in accordance with VDE
- and at specific intervals.

The intervals must be set so that any defects that are likely to occur can be detected in good time.

The relevant electrical engineering rules must be observed during the inspection.

The inspection prior to initial commissioning is not necessary if the manufacturer or installer confirms to the operator that the electrical systems and equipment comply with the provisions of the accident prevention regulations.

COMMISSIONING

Remove the hand levers from the case and attach them.

Pay attention to the mains voltage! The voltage of the power source must match the specifications on the type plate of the magnetic drill. Your power source must be equipped with a protective earth connection.

Permissible voltage fluctuations in normal cases: $\pm 5\%$ volts.

Permissible frequency fluctuations: $\pm 1\text{ Hz}$ (50/60 Hz)

OPERATION

- Continuous operation of the magnetic drill for more than 2 to 3 hours is not permitted. Excessive load may cause a fire hazard! The magnetic drill must be allowed to cool down before continuous operation can be resumed.
- If the drill bit jams, the magnetic drill must be switched off immediately.
- Operation of the magnetic drill in an open environment is not permitted.
- For magnetic drilling machines with automatic feed, the lowest speed and feed rate must be selected at the start of work.
- Drilling into non-magnetisable surfaces is only possible if a sufficiently large steel plate has been attached to the non-magnetisable surface.
- First switch on the electromagnet and then the drill spindle. When switching off, first switch off the drill spindle and then the electromagnet.
- When drilling in a vertical position or overhead, two people must be present.
- The safety belt should also be used for horizontal drilling to secure the magnetic drill against falling from elevated work locations.
- The manually operated drill feed should not exceed 0.05 mm per revolution.
- Only use suitable core drills for the intended machining task.

Suitable tools: Weldon; clamping of tools with 19 mm cylindrical shank and lateral drive surface similar to DIN 1835-B and DIN 6535-HB.



WARNING!

Coolants and lubricants may be ejected or overflow. Ensure that coolants are removed immediately after completing the work. Close the shut-off valve of the coolant tank again.

FASTENING THE TOOL IN THE HOLDER

Standard

Insert the tool and clamp it in place with the side screw.

Quick change

Push the sleeve upwards and insert the tool. Release the sleeve again and check that it is securely fastened.

Standard quick-change



Place the magnetic drill on the workpiece.

Note:

A sensor checks the possible magnetic holding force. If the magnetic holding force on the component is insufficient, the magnetic drill cannot be switched on.

The magnetic drill will only adhere properly to the material to be drilled if the surface of the material is clean and smooth. Loose rust, dirt and grease must be removed before placing the magnetic drill on the material, and any weld beads or unevenness must be smoothed out. A thin layer of paint does not affect the adhesive effect. If necessary, clean the magnetic base as well. After switching on the magnet, shake the magnetic drill vigorously to ensure that it adheres properly to the material. If this is not the case, check the material surface and the underside of the magnetic base, clean if necessary and switch on the magnet again.

THIN STEEL

Optimum adhesion is achieved on low-carbon steel with a minimum thickness of 12 mm. To drill in thinner steel, a 12 mm steel plate can be placed under the material (at the point where the magnetic base is to be placed).

NON-FERROUS METALS

To drill in non-ferrous metals, attach a steel plate to the material to be machined and place the magnetic drill stand on top of it. Plug the power cord into the socket. Position the machine in the position to be machined and switch on the magnet. Make sure that there is no contamination on the surface and that the holding force of the magnet is sufficient. The material thickness of the steel plate should be more than 10 mm.

WORKING WITH ROUND OR HEAVILY CURVED MATERIAL

When working with round or strongly curved material, place the magnetic base on the material so that its longitudinal axis runs parallel to the longitudinal axis of the round material. Fill the free space between the magnetic base and the material on both sides along the entire length of the magnetic base with steel wedges. After switching on the magnet, the holding force via the wedges should be high enough to ensure that the machine is held securely and firmly in place.

The steel wedges must be distributed on both sides of the magnetic base so that the axis of the drill bit is aligned directly with the highest point of the curved material. Otherwise, the drill bit may drift sideways. Shake the magnetic drill to ensure that the magnetic base has sufficient holding power.

CARE AND MAINTENANCE

Before starting maintenance or repair work, be sure to disconnect the power plug!

Repairs may only be carried out by qualified personnel with the appropriate training and experience. After each repair, the device must be checked by a qualified electrician in accordance with VDE regulations. The power tool is designed to require a minimum of care and maintenance.

However, the following points must always be observed:

- Clean the magnetic drill after completing drilling work. Then grease the drill spindle thread. The ventilation slots must always be clean and open. Ensure that no water gets into the magnetic drill during cleaning.
- After approx. 300 operating hours, the carbon brushes must be checked by a qualified electrician in accordance with VDE and replaced if necessary (use only original carbon brushes).
- Have the switches, cables and plugs checked quarterly by a qualified electrician in accordance with VDE.

ENVIRONMENTAL PROTECTION

Raw material recovery instead of waste disposal!

To avoid transport damage, the device must be delivered in sturdy packaging. The packaging, device and accessories are made of recyclable materials.

The plastic parts of the device are marked according to material type. This enables environmentally friendly, single-type disposal via the collection facilities provided.

For EU countries only

Do not dispose of power tools in household waste! In accordance with European Directive 2012/19/EU on waste electrical and electronic equipment and its implementation in national law, used power tools must be collected separately and recycled in an environmentally friendly manner.

NOISE/VIBRATION

The noise of this power tool is measured according to DIN 45 635, Part 21. The sound pressure level at the workplace may exceed 85 dB(A); in this case, noise protection measures are required for the operator.

Wear hearing



protection!

Hand/arm vibration is typically lower than 2.5 m/s². Measured values determined in accordance with EN 61 029.

The specified vibration level represents the actual applications of the power tool. However, if the power tool is used for other applications, with different tools or insufficient maintenance, the vibration level may differ. This can significantly increase the vibration exposure over the entire working period.

For an accurate assessment of the vibration exposure, the times when the device is switched off or running but not actually in use should also be taken into account. This can significantly reduce the vibration exposure over the entire working period.

Establish additional safety measures to protect the operator from the effects of vibration, such as: maintenance of power tools and application tools, keeping hands warm, organisation of work processes.

SHUT-OFF CARBONS

The power tool is equipped with a self-switching carbon brush to protect the motor. If the carbon brushes are worn, the machine switches off automatically. In this case, both carbon brushes must be replaced simultaneously with original carbon brushes by a qualified electrician in accordance with VDE.

TROUBLESHOOTING

Fault	Cause	Remedy
Magnetic base not working	Switch contact faulty	Replace switch
	Power supply defective, plug loose	Replace cable and plug
	Overload, the fuse has blown	Replace fuse
	Short circuit in the electromagnet or defective electromagnet	Replace or repair electromagnet
	Magnetisability of the substrate too low	Check thickness of substrate, check material properties of substrate
	Defective circuit board	Replace circuit board
Drill spindle does not switch on	Electromagnet not switched on	Switch on the electromagnet before switching on the drill spindle
	The sensor detects insufficient magnetic holding force on the component	See operating instructions "Thin steel"
	Switch contact defective	Replace switch
	Defective armature or stator winding	Replace the entire defective component
Problems with the drive motor	The spark colour on the electric motor turns orange-red	Reduce the drill feed
	Sparks fly out	Replace the carbon brushes
	Sparks fly out in a ring of fire	Check for defective armature or stator winding, motor burned out
Drill bit runs off course, drilled hole is out of round	Hard spot in the workpiece Length of the cutting spirals/or angle on the drill bit uneven	Use a new drill bit
	Drill bit bent	Use a new drill bit
Drill bit or core drill "burns"	Feed rate too high	Reduce feed rate
	Chips are not coming out of the drill hole	Retract the drill bit more often
	Drill bit blunt	Sharpen drill bit/use new drill bit
	No or insufficient cooling	Use coolant
The drill chuck or tapered mandrel cannot be inserted	Dirt, grease or oil on the conical inside of the drill chuck or on the conical surface of the drill spindle Position of the driver in the drill spindle not observed	Clean surfaces carefully, keep surfaces free of grease
Drill feed does not work	Manual feed gear worn	Replace the transmission gear
Coolant not flowing	Centring pin in crown drill missing	Insert centring pin

WHAT TO DO IN THE EVENT OF MALFUNCTIONS

Switch off the machine in the event of malfunctions and disconnect it from the power supply. Work on the machine's electrical system may only be carried out by a qualified electrician in accordance with VDE regulations.

WARRANTY

In accordance with our general terms and conditions of delivery, a warranty period of 12 months applies to material defects in business transactions with companies (proof by invoice or delivery note). Damage resulting from natural wear and tear, overloading or improper handling is excluded from this warranty. Damage caused by material or manufacturing defects will be repaired or replaced free of charge. Complaints can only be accepted if the device is sent to the supplier without being dismantled.

EC Declaration of Conformity

The manufacturer/distributor
Kernlochbohrer GmbH
Geigersbühlweg 52
72663 Großbettlingen
Germany

hereby declares that the following product

Product name: Magnetic drill
Type: MKB 35-HD; MKB 50-HD

complies with all relevant provisions of the applicable legal regulations (below) – including any amendments applicable at the time of the declaration. The manufacturer is solely responsible for issuing this declaration of conformity. This declaration only applies to the machine in the condition in which it was placed on the market; parts subsequently added and/or modifications subsequently made by the end user are not taken into account.

The following legislation has been applied:

Machinery Directive 2006/42/EC
EMC Directive 2014/30/EU
RoHS Directive 2011/65/EU

The protection objectives of the following additional legal provisions have been complied with:
Low Voltage Directive 2014/35/EU

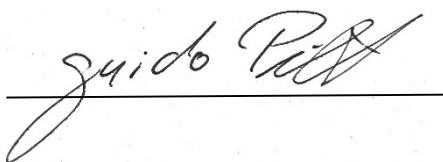
The following harmonised standards have been applied:

EN 60204-1:2006/AC:2010	Safety of machinery – Electrical equipment of machines – Part 1: General requirements (IEC 60204-1:2005 (modified))
EN ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)
BS EN 62841-2-1	Electric motor-operated hand-held tools, portable tools and lawn and garden machinery. Safety - Particular requirements for hand-held drills and impact drills
EN 61000-6-1:2007	Electromagnetic compatibility (EMC) - Generic standards; Immunity for residential, commercial and light-industrial environments
BS EN 61000-6-3+A1	Electromagnetic compatibility (EMC). Generic standards. Emission for residential, commercial and light-industrial environments

Name and address of the person authorised to compile the technical documentation:

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