BDS MASCHINEN

GB

Translation of the Original Operating Instructions

MABasic 200, 400, 450, 850

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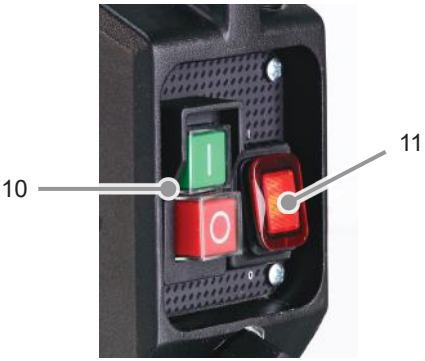
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Table of contents

Dear Customer,

Before using the machine, please read the operating instructions contained in these operating instructions on startup, safety, intended use as well as cleaning and care.

The links and illustrations in these instructions refer to the illustrations on the inside of the cover.

Keep these operating instructions for later use and pass them onto the next owner of the machine.

General instructions

Copyright

Liability disclaimer

All technical information, data and instructions contained these operating instructions for startup, operation and care correspond to the latest requirements at the time of printing.

The manufacturer assumes no liability for damage or injury resulting from failure to observe the operating instructions, use for other than the intended purpose, unprofessional repairs, unauthorised modifications or use of non-approved spare parts and accessories, tools and lubricants.

Instructions on disposal

The packaging materials used can be recycled. When no longer required, dispose of the packing materials according to local environmental regulations.

This product may not be disposed of in the European Union via the normal household refuse. Dispose of the device via communal collection points.

Safety warning structure

The following warnings are used in these operating instructions:

⚠ DANGER

A warning of this category indicates an impending dangerous situation.

If the dangerous situation is not avoided, it may lead to serious injury or even death.

► Follow the instructions in this warning to avoid possible danger of serious injury or even death.

⚠ WARNING

A warning of this category indicates a potentially dangerous situation.

If the dangerous situation is not avoided, it may lead to injuries.

► Follow the instructions in this warning to avoid the danger of serious injury to persons.

ATTENTION

A warning of this category indicates potential danger to property.

If the situation is not avoided, it may lead to material damage.

► Follow the instructions in this warning to avoid material damage.

NOTE

► A note indicates additional information that simplifies the use of the machine.

Intended use

The machine is intended solely for drilling operations in magnetic and non-magnetic metals within the limits specified in the technical data.

Any use other than previously stated is considered as improper use.

⚠ WARNING

Danger due to improper use!

If not used for its intended purpose and/or used in any other way, the machine may be or become a source of danger.

► Use the machine only for its intended purpose.

► Observe the procedures described in these operating instructions.

No claims of any kind will be accepted for damage resulting from use of the system for other than its intended purpose.

The risk is borne solely by the operator.

NOTE

► If used commercially, pay attention to compliance with the accident prevention and occupational safety regulations.

Safety

⚠ CAUTION

When using electrical tools, the following fundamental precautions must be taken to protect against electric shock and the risk of injury and fire!

Fundamental safety instructions

- Do not use the machine in potentially flammable or explosive environments.
- Persons, who are unable to safely operate the machine due to their physical, mental or motor abilities, my only use the the machine under the supervision or instruction of a person responsible.
- Persons with heart pacemakers or other medical implants must not use this machine.
- Children are not permitted to use the machine.
- Inspect the machine for visible signs of damage before use. Do not operate a damaged machine.
- Before beginning work, check the condition of the safety lashing strap and the function of the switches on the machine.
- Repairs to the connecting cable may only be performed by a qualified electrician.
- Repairs to the machine may only be performed by an authorised specialist workshop or factory customer service. Improper repairs can cause considerable danger to the user.
- Repairs to the machine during the guarantee period may only be performed by a customer service authorised by the manufacturer, otherwise the guarantee is invalid.
- Defective parts may only be replaced with original spare parts. Only these parts ensure that the safety requirements are met.
- Do not leave the machine unsupervised during operation.
- Store the machine in a dry, temperate location out of the reach of children.
- The machine may not be kept outside and be subject to humidity.
- Make sure that your work area is sufficiently lit (>300 Lux).
- Do not use low-power machines for heavy working.
- Pay attention to cleanliness at the workplace.
- Keep the machine clean, dry and free of oil and grease.
- Follow the instructions on lubricating and cooling the tool.

Danger from electric current!

⚠ DANGER

Danger to life from electric current!

Contact with live wires or components can lead to serious injury or even death!

Observe the following safety precautions to avoid any danger from electric current:

- ► Do not open the housing of the machine. Risk of electric shock from touching live connections.
- ► Never immerse the machine or mains plug in water or other liquids.
- ► Only use extension or cable drums with a cable cross-section of 1.5 mm².
- ► Only use extension cables that are approved for the location of use.
- ► Check the condition of the extension cable regularly and replace if damaged.
- ► Avoid bodily contact with grounded parts (e.g., pipes, radiators, steel girders) to reduce the risk of electric shock in the event of a defect.
- ► When using the machine outside or in a humid environment, an RCD (residual circuit device) must be used.

Risk of injury!

⚠ WARNING

Improper handling of the machine increases the risk of injury!

Pay attention to the following safety instructions in order not to injure others or yourself:

- ► Operate the machine only with the protective equipment stipulated in these operating instructions (see section ***Personal protective equipment***).
- ► **Do not** wear protective gloves when the machine is running. A glove can be caught by the drilling machine and torn off the hand. Risk of losing one or more fingers.
- ► Remove loose jewellery before beginning work. Wear a hair net if you have long hair.
- ► Always switch off the machine before changing tools, performing maintenance or cleaning. Wait until the machine has come to a complete standstill.
- ► Always remove the plug from the mains socket before changing tools, cleaning or performing maintenance work in order to avoid unintentional starting of the machine.
- ► Do not put your hand into the machine while it is in operation. Remove swarf only when the machine is at a standstill. Wear protective gloves when removing swarf.
- ► When working on scaffolding, the operator must be secured with a safety belt as the machine can oscillate dangerously in the event of interruption to the power supply.

⚠ WARNING

- ► Check for secure clamping of the electromagnets on the substrate before every use (see section ***Preparing***).
- ► Secure the machine with the safety lashing strap supplied when working from an inclined or vertical position or during overhead work. The machine could fall down if the magnet is loosened or the power fails.
- ► Check that the tool is tightened securely before using (see section ***Inserting the tool***).
- ► Do not allow the connecting cable to hang over edges (trip effect).

Preventing damage

ATTENTION

Potential damage to property if the machine is improperly used!

Observe the following instructions to avoid damage to property:

- ► Before connecting the machine, compare the connection data (voltage and frequency) on the type plate with those of your mains power supply. The data must correspond in order to avoid damage to the machine.
- ► Always use the handle to carry the machine and not the connecting cable.
- ► Do not pull the mains cable to remove the plug from the mains socket.

ATTENTION

- ► Do not crush the connecting cable.
- ► Do not subject the connecting cable to heat or chemical liquids.
- ► Do not pull the connecting cable across sharp edges or hot surfaces.
- ► Lay the connecting cable in such a way that it cannot be caught and wound up in the rotating part of the machine.

Safety appliances

Restart protection

NOTE

- ► The machine stops automatically when the magnetic clamp is switched off or if the power supply is interrupted.

In order to prevent the machine from starting unexpectedly after switching on the magnetic clamp again or after reconnection following interruption to the power supply ("restart protection"), the machine must be switched on using the ON/OFF switch.

Symbols on the machine

The symbols on the machine have the following meaning:

Symbol	Meaning
	Electric shock hazard!
	Read the operating instructions before beginning work!
	Wear protective goggles and ear protection!

Personal protective equipment

Wear the following protective equipment at all times when operating the machine:

Symbol	Meaning
	Close-fitting work protection clothing with a low tear strength
	Goggles for protecting eyes against flying parts and liquids and ear protection in areas with noise emission >80 dB(A)
	Safety shoes for protecting feet against falling objects.

Also wear the following protective equipment during special work:

Symbol	Meaning
	Helmet for protecting your head against falling objects
	Wear a harness where there is a danger of falling
	Gloves for protection against injuries

Components / delivery contents

Machine overview

1	Core drill (not supplied as standard)
2	Tool mounting
3	Gearbox (with selector switch: 2-stage for MABasic 400 and 450 4-stage for MABasic 850)
4	Drive motor
5	Handle
6	Hand lever
7	Operating panel
8	Magnetic foot
9	Machine slide and guide
12	Filler neck for cutting oil
13	Cutting oil tank

Operating panel

10	Motor ON/OFF switch
11	Magnet ON/OFF switch

Scope of supply

20	Core drilling machine
21	Safety lashing strap
22	ZAK075 ejector pin
23	Transport case
24	Hexagonal offset screwdriver: SW 4 for MABasic 200/400 SW5 for MABasic 450 SW5 + SW6 for MABasic 850
25	Industrial tool holder (ZIA 219 KN for MABasic 450 ZIA 319 KN and ZIA 332 KN for MABasic 850)
	Operating instructions/guarantee card (not illustrated)

Before using for the first time

Transport inspection

As standard, the machine is supplied with the components indicated in the ***Delivery contents*** section.

NOTE

► Check for visible signs of damage or missing items on delivery. Report an incomplete or damaged delivery to your dealer/supplier immediately.

Preparation

This section contains important instructions on the required preparation before beginning any work.

Additional safety measures for certain work

Additional safety precautions must be taken for the following operations with the machine:

Non-horizontal work position

⚠ WARNING

Risk of injury from a falling machine.

When working in an inclined or vertical position or during overhead work, the machine must be secured using the safety lashing strap (21) supplied to prevent it from falling.

► Before using, check the safety lashing strap for proper function. A damaged safety lashing strap may not be used. Replace a damaged safety lashing strap immediately.

⚠ WARNING

► Attach the safety lashing strap in such a way that the machine can fall away from the operator if it slips.

► Lay the safety lashing strap as tightly as possible around the handle of the machine.

► Before beginning work, check that the safety lashing strap and the lock is firmly seated.

► Use the protective equipment stipulated in the section ***Personal protective equipment.***

Work on scaffolding

⚠ WARNING

Risk of falling from sudden oscillating movements of the machine.

When working on scaffolding, the machine can make a sudden oscillating movement on starting or in the event of interruption to the power supply.

► Secure the machine with the safety lashing strap (21) supplied.

► Wear a safety harness to protect yourself against falling.

Check the condition of the substrate

The magnetic holding force is dependent on the condition of the substrate. The clamping force is significantly reduced by paint, zinc and scale coatings and rust.

The substrate must satisfy the following conditions in order to achieve sufficient magnetic holding force:

- The substrate must be magnetic.
- The clamping surface and the magnetic foot (8) must be clean and grease-free.
- The clamping surface must be completely smooth and level.

NOTE

- ► Clean the substrate and the magnetic foot (8) of the machine before use.
- ► Remove any unevenness and loose rust from the substrate.
- ► The BDS range of accessories includes special holding devices.

The best clamping effect is obtained on low-carbon steel substrate with a thickness of at least 20 mm.

Steel with low thickness

When drilling into low thickness steel, an additional steel plate (minimum dimensions 100 x 200 x 20 mm) must be placed under the workpiece. Secure the steel plate to prevent it from falling.

NF metals or workpieces with an uneven surface

A special holding device must be used when drilling into NF metals or into workpieces with an uneven surface.

NOTE

- ► BDS offers a range of accessories with special clamping devices for tubes and non-magnetic materials.

Inserting the tool

⚠ WARNING

Risk of injury!

- ► Do not use damaged, soiled or worn tools.
- ► Change tools only when the machine is switched off and at a standstill. Pull the plug out of the mains socket.
- ► After inserting, check that the tool is engaged securely.
- ► Only use tools, adapter and accessories that match the machine.

MABasic 200 and 400

Insert the core drill into the direct tool mount (illustration A)

- Before mounting, clean the Weldon shank and direct tool mount (2) of the machine.
- Check the cable connection for grease.
- Unscrew both hexagonal socket screws in the direct tool mount using the hexagonal offset screwdriver (24) supplied.
- Insert the core drill in the direct tool mount (2).

NOTE

► Insert the appropriate ejector pin (22) before inserting the core drill.

- Tighten both hexagonal socket screws in the direct tool mount (2) using the hexagonal offset screwdriver (24) supplied.

Removing the tool

- Unscrew both hexagonal socket screws in the direct tool mount (2) using the hexagonal offset screwdriver (24) supplied and remove the core drill from below.

MABasic 450 and 850

Insert the core drill into the industrial tool holder (illustration B)

- Push the industrial tool holder (25) into the spindle taper of the machine.
- Before inserting, clean the Weldon shank of the tool and the tool holder.
- Check the cable connection for grease.
- Unscrew both hexagonal socket screws in the tool mount using the hexagonal offset screwdriver (24) supplied.
- Insert the core drill into the tool mount.

NOTE

► Insert the appropriate ejector pin (22) before inserting the core drill.

- Tighten both hexagonal socket screws in the tool mount (2) using the hexagonal offset screwdriver (24) supplied.

Removing the tool

- Unscrew both hexagonal socket screws in the tool mount (2) using the hexagonal offset screwdriver (24) supplied and remove the core drill from below.

Use

Select the rotating speed range (only MABasic 400, 450 and 850)

ATTENTION

► Switch the gear stages only with the machine at standstill.

NOTE

► Select the speed range according to the material and drilling diameter.

Select the gear stage MABasic 400/450

The machine has a gearbox with two mechanical gear stages. The rotation speeds of the gear stages are specified in the technical data.

◆ To select the desired gear stage, set selector lever on the gearbox (3) to stage 1 or 2 with the machine switched off.

Select the gear stage MABasic 850

The machine is equipped with a gearbox that has four mechanical gear stages. The rotation speeds of the gear stages are specified in the technical data.

◆ To select the gear stage, switch the machine off and set both selector levers on the gearbox (3) to the desired speed according to the table below.

Rotating speed	Selector lever	
	left	right
Level 1	▼	▲
Level 2	▼	▼
Level 3	▲	▲
Level 4	▲	▼

Activating/deactivating the magnetic clamp

Activating the magnetic clamp

ATTENTION

► To prevent the magnet from overheating, switch on the magnetic clamp only when the machine is standing on a magnetic substrate.

◆ Turn on the switch (11). The indicator lamp in the switch (11) lights up.

ATTENTION

► The maximum magnetic holding force is only available after switching on the motor.

Deactivating the magnetic clamp

◆ Hold the handle tightly (5) to stop the machine from slipping.

◆ Turn off the switch (11). The indicator lamp in the switch (11) extinguishes.

Switching the machine ON/OFF

◆ Using the ON/OFF switch (10), turn the machine ON with the green button (I) and OFF with the red button (O).

NOTE

► The machine can only be switched on when the magnetic clamp has been switched on.

► Allow a severely overheated machine to run on at idle speed for approx. 2 minutes.

► The machine switches off automatically in the event of a power failure or if the magnetic clamp is switched off.

Drilling with the machine

Drilling with core drills

When drilling with core drills, proceed as follows:

- Insert the corresponding ejector pin (22) into the core drill.
- Insert the drill chuck with the ejector pin as described in chapter ***Inserting the tool***.
- Place the machine at the work location, align it and switch on the magnetic clamps.
- Switch the machine on.
- Direct the drill to the material with the handle (6).

NOTE

Observe the following instructions when drilling with core drills:

- ► Drilling with core drills does not require great force. The drilling process is not accelerated by higher pressure. The drill wears faster and the machine can be overloaded.
- ► Use the high-performance BDS 5000 cutting oil in the cooling lubricant system of the machine.
- ► The cooling lubricant system cannot be used when working overhead. In this case, use the high-performance ZHS 400 grease spray. Spray the drill on the inside and outside before drilling. In the case of larger drill depths, repeat this procedure.
- ► Make sure that swarf is removed regularly. With larger drilling depths, break up the swarf.

Eliminating blockages

⚠ WARNING

Danger of cut injuries from broken tool parts or swarf.

- ► Put protective gloves on before starting work.

Blockages caused by a broken tool:

- Switch off the machine. Remove plug from the mains socket.
- Use the handle to move the machine slide to the upper position.
- Replace defective tool. Remove swarf.

Other blockages:

- Switch the machine off using the motor switch. Leave the magnetic clamp switched on.
- Use the handle to move the machine slide to the upper position.
- Remove swarf and check tool.

Cleaning

⚠ WARNING

- ► Switch off the machine and pull the plug out of the mains socket before starting maintenance and cleaning.
- ► When using compressed air for cleaning, wear protective goggles and gloves and protect other persons in the working area.

ATTENTION

- ► Never immerse the machine in water or other liquids.

After each use

- ◆ Remove the inserted tool.
- ◆ Remove swarf and coolant residues.
- ◆ Clean the tool and the tool holder on the machine.
- ◆ Clean the guide of the machine slide.
- ◆ Put the machine and accessories into the transport case.

Maintenance

⚠ WARNING

Danger caused by unqualified repairs!

Unqualified repairs can lead to considerable danger for the user and cause damage to the machine.

- ► Repairs to electrical appliances may only be carried out by the works customer service or by specialists trained by the manufacturer.

Adjusting the machine slide guide

If the machine slide guide (9) exhibits too much clearance, it must be adjusted. To do this, proceed as follows:

- ◆ Loosen the clamping bolts.
- ◆ Tighten the adjusting screws evenly.
- ◆ Tighten the clamping bolts again.

Replacing the carbon brushes

Replacement of the carbon brushes may only be carried out by BDS or by an authorised specialist workshop. Unauthorised repairs will invalidate the guarantee.

Customer service/service

Should you have any questions on customer service/service, please contact BDS.We will be happy to give you the address of your nearest service partner.

Storage

Storage

If you do not intend to use the machine for a longer period of time, clean it as described in the section ***Cleaning***. Store the machine and all its accessories in the transport case at a dry, clean and frost-free location.

Troubleshooting

Error	Possible cause	Remedy
The motor does not start after pressing the ON/OFF switch or stops during operation.	Plug not inserted into socket.	Insert plug.
	Circuit breaker switched off.	Switch on circuit breaker.
	The magnetic clamp is not switched on.	Switch on the magnetic clamp.
the circuit breaker in the power distributor trips.	Too many appliances connected to the same power circuit.	Reduce the number of appliances on the power circuit.
	The machine is defective.	Contact customer service.
The magnetic clamp does not function.	Magnet not switched on.	Switch on the magnet.
	The surface is not magnetic.	Use a suitable base.
The lubrication system does not function.	No lubricant available.	Top up the lubricant.
	Lubricant tap closed.	Open the lubricant tap.
	Connecting nipple clogged.	Clean the tank and nipple.

NOTE

► If you cannot resolve the problem with the steps described above, please contact customer service.

Technical data

Model	MABasic 200	MABasic 400	MABasic 450	MABasic 850	
Dimensions (L x W x H)	269 x 163 x 310/470	280 x 163 x 355/515	280 x 163 x 430/590	329 x 240 x 491/751	mm
Magnetic foot (L x W)	168 x 84	168 x 84	168 x 84	220 x 110	mm
Approx. net weight.	12	12	13	24	kg
Operating voltage (see type plate)	230 V / 50-60 Hz or 110-125 / 50-60 Hz				
Power consumption	900	1050	1150	1700	W
Noise emission	87	87	87	89	db(A)
Vibration	0.81	0.81	0.81	0.77	m/s²
Stroke	160			255	mm
Core drill max. Ø	32 (1 ¼")	35 (1 ⅜")	40 (1 ⁹⁄₁₆")	75 (3“)	mm
Cutting depth max.	30 / 55			30 / 55 /110	mm
Twist drill max. Ø	13	16	18	31.75	mm
Speed stage 1	n_0 = 600 n = 450	n_0 = 600 n = 430	n_0 = 400 n = 250	n_0 = 215 n = 110	rpm
Speed stage 2	-	n_0 = 1050 n = 760	n_0 = 730 n = 450	n_0 = 330 n = 175	rpm
Speed stage 3	-	-	-	n_0 = 460 n = 245	rpm
Speed stage 4	-	-	-	n_0 = 680 n = 385	rpm
Core drill assembly	Weldon 19 mm (3/4“)	Weldon 19 mm (3/4“)	MK2/19 mm industrial tool holder (3/4“)	MK3/19 mm industrial tool holder (3/4“) MK3/32 mm(1 1/4“)	
Connecting cable length:	4	4	4	4	m
Protection class	I	I	I	I	
Protection type	IP20	IP20	IP20	IP20	IP20

EC Declaration of Conformity

in accordance with Machine Directive 2006/42/EC, appendix II 1A	
Name/address of the manufacturer:	**BDS Maschinen GmbH** Martinstraße 108 D-41063 Mönchengladbach
We hereby declare that the product:	
Model:	**Magnetic core drilling machine**
Model	**MABasic 200, 400, 450, 850**
conforms to the following relevant regulations: ■ **EC Directive 2006/42/EC on machinery**	
The following harmonised standards were applied in whole or in part: ● DIN EN ISO 12100:2011-03 ● DIN EN 61029-1/A11:2011-11	
Authorised person for compiling the technical documentation:	**BDS Maschinen GmbH**
Full technical documentation is available. The operating instructions associated with the product is available.	
It is required that the product is only operated as intended. Information on operating as intended can be obtained from the technical documentation.	
Mönchengladbach, 01st September, 2016	 Wolfgang Schroeder, Technical Director (Legally binding signature of the issuer)


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