



Zimmerei-Bohrmaschine ZB 100 ES

Originalbetriebsanleitung

Carpentry Drilling Machine ZB 100 ES

Original operating instructions

Perceuse pour charpente ZB 100 ES

Traduction de la notice d'emploi originale

Trapano per carpenteria ZB 100 ES

Istruzioni per l'uso originali

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ACHTUNG !

Diese Betriebsanleitung enthält Hinweise, die für das sichere Arbeiten mit dieser Maschine wichtig sind. Lesen Sie deshalb unbedingt diese Betriebsanleitung sorgfältig durch!

WARNING !

These operating instructions contain important notes on safe working practices with this machine. It is therefore essential that you read these operating instructions carefully!

AVERTISSEMENT !

Cette notice d'emploi contient des indications importantes pour la sécurité du travail avec cette machine. Veuillez la lire attentivement !

ATTENZIONE !

Le presenti istruzioni per l'uso contengono avvertenze importanti per lavorare con sicurezza con questa macchina. Per questo motivo leggete assolutamente le presenti istruzioni per l'uso con la dovuta accuratezza!

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You will find the following warnings and symbols in these operating instructions:



This symbol indicates where you will find notes for your safety. If disregarded, this may result in very serious injuries.



This symbol indicates a potentially hazardous situation. If it is disregarded, the product or objects in its vicinity may be damaged.



This symbol indicates tips for the user and other useful information.

1 Product information

for machines with Art.-No. 923 601 or 923 620

1.1 Manufacturer's data

MAFELL AG

P. O. Box 1180, D-78720 Oberndorf / Neckar

Phone +49 7423 812-0, Fax +49 7423 812-218

1.2 Machine identification

All data required for identification of the machine are stated on the rating plate which is attached to the motor casing.

- ›  Protection class II
- ›  CE-mark to declare conformity with the essential health and safety requirements according to Annex I of the Machinery Directive
- ›  Only for EU countries

Do not dispose of electric tools together with household waste material!

In observance of European Directive 2002/96/EC on waste electrical and electronic equipment and its implementation in accordance with national law, electric tools that have reached the end of their life must be collected separately and returned to an environmentally compatible recycling facility.

1.3 Technical data

- | | |
|---|----------------------|
| › Cutting depth | 100 mm (3 15/16 in.) |
| › Clamping collar | 63 mm (2 31/64 in.) |
| › Safety rapid action coupling | |
| › Tool speed (no load) | 340 - 1450 rpm |
| › Two-stage mechanical gear | |
| › Electronic speed control stabilized under load | |
| › Clockwise / counterclockwise rotation | |
| › Weight | 7.7 kg (16.9 lbs) |
| Universal motor, radio and TV interference suppressed | |
| › Power input (continuous operation) | 1200 W |
| › Power output | 760 W |

1.4 Noise emission

Noise emission values determined according to EN 60745-1 and 60745-2-1:

	Sound power level	Workplace-related emission value
No load	99 dB (A)	89 dB (A)
Operation	98 dB (A)	90 dB (A)

The noise measurement was recorded using the drill bit included in the standard equipment.

The stated values do not take any series variance into account and are not suitable for determining the immission sound power level, since this varies depending on the operating time, the machining operation concerned and environmental factors. The immission sound power level can consequently be determined only in the individual instance on the premises of the machine user.

1.5 Vibration

The typical hand-arm vibration is less than 2.5 m/s².

1.6 Delivery specification

Carpentry drilling machine ZB 100 ES complete with:

- 1 mains cable 10 m / 33 ft (5 m / 16.4 ft - CH)
- 1 special drill mount
- 1 mounting shaft 039 192
- 1 operating manual
- 1 folder «Safety instructions»

1.7 Use according to intended purpose

The MAFELL carpentry drilling machine ZB 100 ES is intended exclusively for cutting operations on solid timber, using head countersinks and ring-groove drilling tools in conjunction with the special drill mount 039160 included in the delivery specification.

The dimension and design of the tools used must correspond to the head countersinks, ring-groove drilling tools and necessary guide pilot pins mentioned in the price list.

Any use beyond this scope is considered as failing to comply with the intended purpose. The manufacturer is not liable for any damage caused as a result of this; the risk is borne solely by the user.

The machine is not suitable for operation in the rain outdoors or in areas subject to explosion hazards.

Use according to intended purpose also includes compliance with the operating, maintenance and repair conditions specified by MAFELL, and adherence to the safety instructions contained in the operating manual.

The carpentry drilling machine ZB 100 ES may only be used, set up and serviced by persons over 18 years of age who are familiar with the machine and have been instructed as to the dangers

involved. Repair work must be carried out by authorized MAFELL dealers or a MAFELL customer service station.

The safety regulations applicable in the country of use, as well as all other generally accepted rules on safety and occupational medicine, must be observed.

Unauthorized modifications to the machine preclude the liability of the manufacturer for any resultant damage.

1.8 Residual risks



Residual risks may also arise owing to the design of the machine relating to its intended purpose even if the machine is used properly and in compliance with all relevant safety regulations; e.g.:

- › Touching the running tools or tool mounting.
- › Breakage of the tools.
- › Hurling away of knives which have not been inserted correctly.

- › Breakage and hurling away of pieces of the knives.
- › Touching the sharp knives when the tool is not running.
- › Touching the sharp cutting edges of the knives when changing the knives.
- › Touching live parts with the housing open and the mains plug not removed.
- › Hearing can be impaired when working for long periods without ear protectors.
- › Emission of wood dust: a health hazard when working for long periods without dust extraction.

2 Safety instructions



Woodworking machines can be dangerous when in use. You should therefore always follow the safety instructions set out in this chapter, as well as the safety regulations applicable in the country of use!

General instructions:

- › Never work without the protective equipment prescribed for the relevant operation and do not make any modifications to the machine that could undermine safety.
- › Children and young persons must not operate this machine. This rule does not apply to young persons over the age of 16 years receiving training and being supervised by an expert.
- › Work on the electrical components of the machine should only be performed by a trained electrician.
- › Prior to all work, make sure that the safety and operating equipment is securely attached and undamaged. Damaged safety equipment and parts must be correctly repaired or exchanged.
- › Always be aware of environmental influences. Do not allow the machine to be exposed to the rain and do not use the machine in a damp or wet environment, or in the vicinity of inflammable liquids or gases.
- › The machine must be operated only outdoors or on well ventilated premises as an effective chip and dust extraction is not possible.
- › When operating the machine outdoors, use of an earth-leakage circuit-breaker is recommended.
- › Do not carry the machine by the cable and do not remove the mains plug from the socket by pulling on the cable.
- › Protect the cable against oil and high temperatures and do not pull it over any sharp edges.
- › Damaged cables or plugs must be renewed immediately.
- › Avoid sharp bends in the cable. Especially when transporting and storing the machine, do not wind the cable around the machine.
- › Only use MAFELL tools which are stated in the price list.
- › Do not use:
 - (Damaged tools.
 - (Blunt tools.
- › Store the machine in the dry under lock and key and out of reach of children.

Instructions on the use of personal safety equipment:

- › Always wear close-fitting industrial clothing and remove rings, bracelets and watches.
- › The sound pressure level at the workplace exceeds 85 dB (A). Users should therefore wear ear protectors.

Instructions on operation:

- › Provide an uncluttered, anti-slip location with adequate illumination.
- › Before tool changes and eliminating malfunctions (including the removal of trapped chips), pull out the mains plug.
- › Never work with pieces which are too big or too small for the machine's capacity.
- › Machine must be switched off before being connected to the mains.
- › Before switching on make sure that the tool as well as the knives are clamped correctly.
- › Hold the machine firmly before switching it on.
- › The bolt for the stop for torsional force must completely touch the workpiece. If the contact is not sufficient, the bolt can slip away. Thus turning and hurling away of the machine or the workpiece cannot be avoided.
- › Whenever possible, secure the workpiece against slipping and tipping over (e.g. with screw clamps).

- › Do not begin cutting until the saw blade has reached full speed.
- › Examine the workpiece for foreign objects. Never attempt to cut nails or other metal objects.
- › Always keep your hands well away from the tool or the tool mounting while the machine is running.
- › Keep your hands away from the underside of the workpiece when cutting (risk of injury!).
- › When cutting, always lead the cable away from the machine to the rear.
- › Match the feedrate to the cutting diameter and the cutting depth when cutting. Excessive feedrates overload the motor, lead to poorly executed cuts and blunt the tool prematurely.
- › A uniform feedrate when cutting increases the life of the knives and the machine and reduces the risk of accidents.
- › The knives must be reversed, sharpened or replaced in good time as blunt knives do not only increase the risk of kickback, but also impose an unnecessary load on the motor.
- › Do not remove the machine from the workpiece until the tool is stationary.

Instructions on service and maintenance:

- › Regular cleaning of the machine, especially of the tool mounting, is an important safety factor. Before beginning this task, pull out the mains plug.
- › Only original MAFELL spare parts and accessories must be used. Otherwise the manufacturer does not offer any warranty and does not accept any liability.

3 Setting up / Adjusting

3.1 Mains connection



Machine must be switched off before being connected to the mains.

The carpentry drilling machine ZB 100 ES has Class II protective insulation (double-insulated).

Before starting up, make sure that the mains voltage matches the voltage stated on the rating plate.

3.2 Mounting and exchanging tools



Always pull out the mains plug before changing tools.

- Lift sleeve 7 (Fig. 1) until the ring groove 8 around the arbor becomes visible. Insert the drill bit into the arbor as far as it will go, the flat end of the drill bit should be in line with the two small grooves 9 cut into the end of the arbor. Release the sleeve.
- To exchange the drill bit hold it with one hand, lift sleeve 7 until the ring groove around the arbor becomes visible. Remove the drill bit and release the sleeve. Before inserting a new drill bit make sure that the shaft of the drill bit and the receiving, toolholding surface of the arbor are clean.

4 Operation



Do not switch on the machine if the drill bit is touching the workpiece.

4.1 Switching on and off

Temporary operation

- Switching on: Press switch 1 (Fig. 2).
- Switching off: Release switch.

Continuous operation

- Switching on: Press switch 1 first and then press locking button 2. The motor runs without keeping the switch pressed.
- Switching off: Press switch 1 until locking button 2 trips, then release the switch.

4.2 Adjusting drilling speed

This drilling machine has a gear box and an electronic speed control. The drilling speed can be adjusted continuously between 340 and 1450 rpm. The built-in electronics ensure a jerk-free acceleration when switching on and control the speed according to the value set.

The drilling speed required should be selected by referring to the diagramme 3 (Fig. 2) (see Fig. 3) and is set by means of the gear shift lever 4 and the setting wheel 5.



Gear should be shifted only when the motor has been switched off and the machine is running out or has stopped (see Fig. 4)! When the machine has been switched on the direction of rotation of the drill bit should be checked. If necessary, the direction of rotation can be changed by means of the reversing switch 6 (Fig. 2). Before actuating the reversing switch the motor should be switched off (the reversing switch is mechanically blocked).

4.3 Operating instructions

Bolt 10 (Fig. 2) should be pushed down as far as possible and fastened with clamping screw 12. Place the machine so that the guide pilot pin of the cutting tool is inserted into the hole in the timber. Turn the machine until the bolt touches the timber so that it can act as a stop for torsional force. When the machine has been switched on it should be pushed down. It is possible to set the cutting depth by means of the depth stop ring 11.

4.4 Tools

For head counter sinks and ring-groove drilling tools see price list. Special leaflets on request!

5 Service and maintenance



Pull out the mains plug before starting on any maintenance work!



MAFELL machines are designed to be low in maintenance. The ball bearings used are greased for life. After a prolonged period of operation, users are recommended to have the machine checked by an authorized MAFELL customer service shop.

5.1 Machine

The machine must be cleaned of dust deposits at regular intervals. When doing so, clean the air vents on the motor using a vacuum cleaner.

5.2 Tools

The drill bits used on the machine must be freed from resin regularly, as clean tools improve the drilling quality.

5.3 Storage

If the machine is out of service for a lengthy period of time, it should be thoroughly cleaned (see chapter 5.1). Spray bright metal panels with a rust-proofing agent.

Store the machine only in dry rooms, where it is protected against weathering.

6 Troubleshooting



The determination of the causes of existing defects and their elimination always require increased attention and caution. Pull out the mains plug beforehand!

Some of the most frequent defects and their causes are listed in the following chart. In case of other defects, contact your dealer or the MAFELL customer service.

Defect	Cause	Elimination
Machine cannot be switched on	No mains voltage Carbon brushes worn	Check power supply Take the machine to a MAFELL customer service shop
Machine stops while cutting is in process	Mains failure	Check mains back-up fuse
Tool jams	Blunt cutting edges	Replace the knives, reverse or sharpen them

7 Optional accessories

- » Supplementary handle, cpl.

Ref. No. 039 203

8 Exploded drawing and spare parts list

The corresponding information in respect of spare parts can be found on our homepage: www.mafell.com