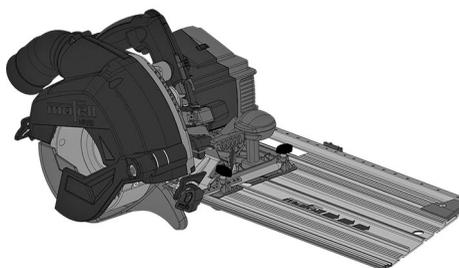


170961.0126/b

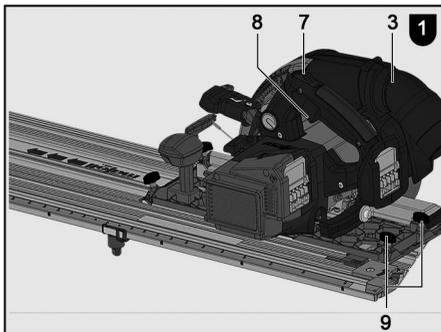
**NFU 50-18**

**mafi**  
creating excellence

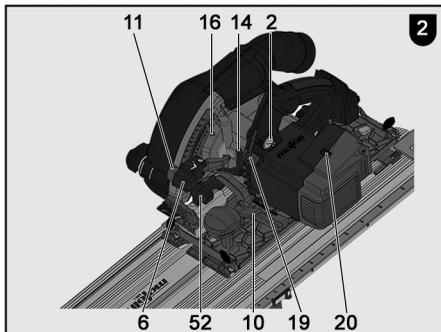
<b>de</b>	Nutfräse / Kapp-Frässystem	Originalbetriebsanleitung	6
<b>en</b>	Groove-cutting machine / cross-cut milling system	Translation of the original operating manual	26
<b>fr</b>	Fraise à rainurer / Système de fraisage transversal	Traduction de la notice d'emploi originale	45
<b>it</b>	Fresa per cave / troncatrice a fresa	Traduzione delle istruzioni per l'uso originali	65
<b>nl</b>	Deuvelrees/kapfreessysteem	Originele gebruiksaanwijzing	85
<b>es</b>	Sistema de fresadora de ranuras / tronzar	Manual de instrucciones original	104
<b>fi</b>	Urajyrsin / katkaisu-jyrsinjärjestelmä	Alkuperäiskäyttöohje	124
<b>sv</b>	Tiller / huggfräsningssystem	Originalbruksanvisning	142
<b>da</b>	Notfræser / kap-fræsesystem	Original driftsvejledning	160
<b>ru</b>	Ламельная фреза / Система торцовочной фрезы	Оригинальное руководство по эксплуатации	178
<b>pl</b>	Frezarka do zaciosów / frezarka ścinająca	Tłumaczenie oryginalnej instrukcji obsługi	200
<b>cs</b>	Drážkovací fréza / kapovací-frézovací systém	Původní provozní návod	221
<b>sl</b>	Utorno frezalo / Čelilni rezkalni sistem	Izvirna navodila za uporabo	239
<b>sk</b>	Drážkovacia fréza / Kapovací frézový systém	Preklad originálneho návodu na používanie	257



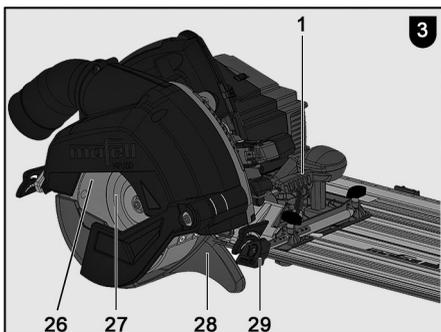
MAF02426/a



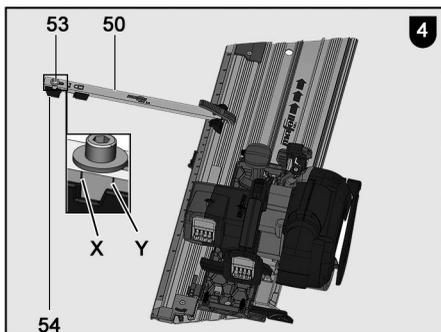
MAF02427/a



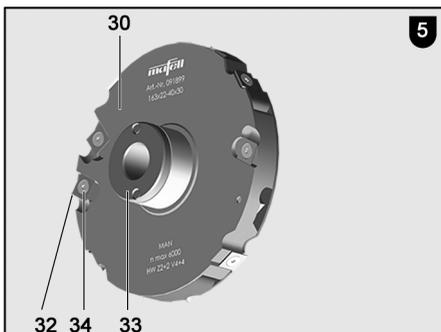
MAF02428/a



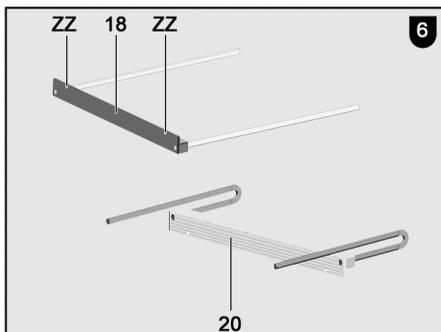
MAF02429/a



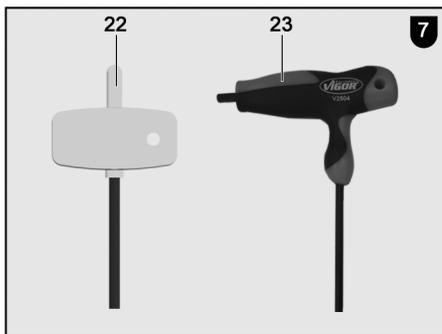
MAF02430/a



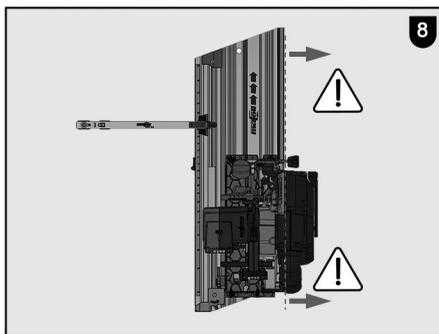
MAF02238/b



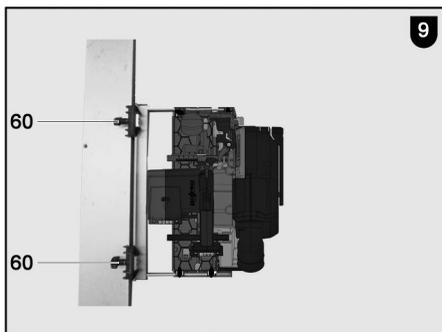
MAF02239/a



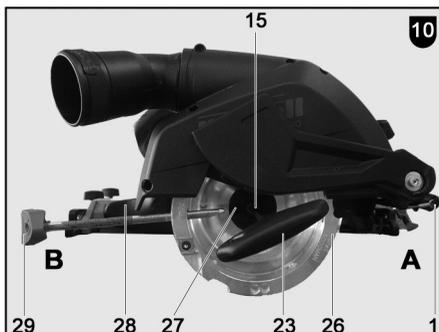
MAF02240/b



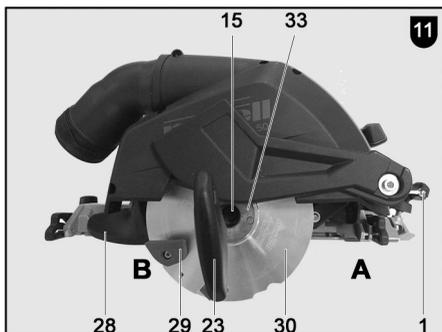
MAF02431/a



MAF02432/a



MAF02433/a



MAF02434/a

**D - EG Konformitätserklärung**

Wir bescheinigen hiermit, dass die Maschine NFU 50-18 den angeführten EU-Richtlinien entspricht. Bei Konstruktion und Bau wurden die gelisteten Normen angewendet. Bevollmächtigter für die Zusammenstellung der technischen Unterlagen: Mafell AG

**GB - EC Declaration of Conformity**

We herewith confirm that the machine NFU 50-18 complies with the EU directives quoted. The standards listed were used for design and construction. Empowered person for the configuration of the technical documents: Mafell AG

**F - Déclaration CE de conformité**

Nous déclarons par la présente que la machine NFU 50-18 est conforme aux directives CE applicables comme suit. Lors de la construction, les règlements suivants ont été utilisés. Pléniopotiaitaires pour l'assemblage des documentations techniques: Mafell AG

**I - Dichiarazione di conformità CE**

Con la presente certifichiamo che la macchina NFU 50-18 è conforme alle seguenti direttive CE applicabili. Nella progettazione e la costruzione sono state applicate le seguenti norme. Responsabile per la composizione della documentazione tecnica: Mafell AG

**NL - EG conformiteitsverklaring**

Wij bevestigen hiermede dat de machine NFU 50-18 aan de vermelde EU-richtlijnen beantwoord. Bij constructie en bouw werden de vermelde normen toegepast. Gemachtigde voor de samenstelling van de technische documenten: Mafell AG

**E - Declaración de conformidad CE**

Con la presente se certifica que la máquina NFU 50-18 cumple las directivas europeas mencionadas, las cuales forman la base tanto del diseño constructivo como de los procesos de fabricación. Apoderado legal para la compilación de la documentación técnica: Mafell AG

**FIN - EY-vaatimustenmukaisuusvakuutus**

Vakuutamme täten, että kone NFU 50-18 vastaa mainittujen EU-direktiivien vaatimuksia. Sen suunnittelussa ja valmistuksessa on sovellettu luettelossa ilmoitettuja standardeja. Teknisten asiakirjojen laatimiseen valtuutettu henkilö: Mafell AG

**S - EG Konformitetsförklaring**

Vi intygar härmed att maskinen NFU 50-18 uppfyller angivna EU direktiv. De angivna normerna användes vid konstruktion och tillverkning. Befullmäktigad för sammanställningen av den tekniska dokumentationen: Mafell AG

**DK - EU overensstemmelseserklæring**

Vi attesterer hermed, at maskinen NFU 50-18 opfylder de angivene EU-direktiver. Konstruktion og bygning er udført iht. de angivene standarder. Person, der er befuldmægtiget til at sammenstille det tekniske materiale: Mafell AG

**RUS - Сертификат соответствия ЕС**

Настоящим подтверждаем, что машина NFU 50-18 отвечает требованиям указанных директив ЕС. При проектировании и изготовлении применялись перечисленные нормы. Уполномоченный представитель по составлению технической документации: Mafell AG

**PL - Deklaracja zgodności UE**

Niniejszym potwierdzamy, że maszyna NFU 50-18 spełnia wymagania wyszczególnionych dyrektyw UE. W trakcie konstrukcji urządzenia zastosowano przedstawione normy. Pełnomocnik odpowiedzialny za zestawienie dokumentacji technicznej: Mafell AG

**CZ - PROHLÁŠENÍ O SHODĚ**

Tímto prohlašujeme, že stroj NFU 50-18 splňuje pokyny uvedených směrnic EU. Při plánování a sestavení byly využity uvedené normy. Za sestavení technických podkladů zodpovídá: Mafell AG

**SLO - ES izjava o skladnosti**

S tem izjavljamo, da stroj NFU 50-18 ustreza navedenim direktivam EU. Pri konstrukciji in izdelavi so uporabljeni našeti standardi. Za sestavo tehnične dokumentacije je pooblašeno podjetje: Mafell AG

**SVK - Vyhlásenie o zhode**

Týmto potvrdzujeme, že stroj NFU 50-18 zodpovedá uvedeným smerniciam EÚ. Pri projektovaní a stavbe boli použité normy uvedené v zozname. Osoba poverená vyhotovením technických podkladov: Mafell AG



2006/42/EG  
2014/30/EU  
2011/65/EU

EN 62841-1, EN 62841-2-5, EN 62841-2-17, EN 55014-1,  
EN 55014-2, EN ISO 12100, EN 847-1

NFU 50-18

Art-Nr. 91F302

Mafell AG

Beffendorfer Str. 4

D - 78727 Oberdorf, den 11.11.2025

Dipl.-Ing. (FH) Thorsten Bühl  
Vorstandsvorsitzender / CEO

i. V. Dipl.-Ing. Harald Schmid, MBA  
Leitung Entwicklung und Konstruktion

**Table of Contents**

1	Signs and symbols .....	28
2	Product information .....	28
2.1	Manufacturer's data .....	28
2.2	Information on the rechargeable battery .....	28
2.3	Machine identification .....	28
2.4	Technical data .....	29
2.5	Emissions .....	29
2.6	Scope of supply .....	30
2.7	Safety devices .....	30
2.8	Intended use .....	30
2.9	Residual risks .....	31
3	General safety instructions for power tools .....	31
4	Safety instructions for all milling cutters .....	31
4.1	Milling process .....	31
4.2	Kickback - reasons and corresponding safety instructions .....	31
4.3	Function of the lower guard .....	32
5	Specific safety regulations .....	32
5.1	Working range .....	32
5.2	Instructions on service and maintenance .....	33
5.3	Note on rechargeable batteries .....	33
6	Setting / adjustment .....	33
6.1	Charging the rechargeable battery .....	33
6.2	Fitting the rechargeable battery .....	34
6.3	Removing the rechargeable battery .....	34
6.4	Chip extraction .....	34
6.5	Tool change .....	35
6.6	Changing the indexable cutting insert .....	36
6.7	Tool change of the adjustable groove cutter (special accessories) .....	36
6.8	Adjusting the milling cutter: Adjustable groove cutter (optional accessories) .....	37
6.9	Indexable cutting insert change "adjustable groove cutter" .....	37
7	Operation .....	38
7.1	Putting into operation .....	38
7.2	Switching on and off .....	38
7.3	Milling depth adjustment .....	38
7.4	Milling depth locking device / repeater depth stop .....	39
7.5	Setting for working at a tilt .....	39
7.6	Working with the parallel stop .....	39
7.7	Working with the roller edge guide .....	39
7.8	Grooves with F-guide rail .....	39
7.9	Working with the guide rail .....	39
7.10	Working according to tracings with KSS-guiding device .....	40

7.11	Working with position indicator (for KSS-guiding device and F-rail).....	40
7.12	Working with the lateral stop in combination with KSS-guiding device .....	40
8	Service and maintenance .....	40
8.1	Storage .....	40
8.2	Tools.....	41
8.3	Tools of older machine types .....	41
8.4	Tools for NFU 50-18 .....	41
8.5	Transport .....	41
8.6	Disposal of rechargeable batteries/batteries .....	41
9	Troubleshooting.....	42
10	Optional accessories .....	43
11	Exploded drawing and spare parts list .....	44

## 1 Signs and symbols



**This symbol is found in all places where you will find information for your safety.**

Non-compliance with these instructions may result in very serious injuries.



**This symbol indicates a potentially hazardous situation.**

If this situation is not avoided, the product or objects in its vicinity may get damaged.



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

## 2 Product information

in respect of machines with item number 91F302, 91F303

### 2.1 Manufacturer's data

MAFELL AG, Beffendorfer Straße 4, D-78727 Oberndorf / Neckar, Phone +49 (0)7423/812-0, Fax +49 (0)7423/812-218, e-mail: mafell@mafell.de, Homepage www.mafell.com

### 2.2 Information on the rechargeable battery

The CE Declaration of Conformity with regard to the rechargeable batteries can be found on our website [www.mafell.com](http://www.mafell.com) in the footer area under the header Legal Matters, Declaration of Conformity.

### 2.3 Machine identification

All details required for machine identification are available on the attached rating plate.



CE symbol to document compliance with the basic safety and health requirements according to Appendix I of the Machinery Directive and Battery Directive.



For EU countries only

Do not dispose of electrical tools together with domestic waste!

In accordance with the European directive 2012/19/EU on waste electrical and electronic equipment and transposition into national law, obsolete electrical tools must be collected separately and recycled in an environmentally-compatible manner.



Read the operating instructions. This reduces the risk of injury.



Protect the rechargeable battery from heat, excessive solar radiation, fire, frost, water and humidity.

Protect rechargeable battery packs from humidity!



Protect rechargeable battery packs from fire!

There is danger of explosion!



Cordless Alliance System (=CAS) is a cross-manufacturer battery pack system. Further information is available at [www.cordless-alliance-system.com](http://www.cordless-alliance-system.com)

## 2.4 Technical data

Type of motor	brushless
Operating voltage	2 x 18 VDC
Speed during idling	4700 - 7100 rpm
Milling depth 0°	50 mm (1 31/32 inches)
Tilting milling unit	0° – 45°
Tool diameter	163 mm (6 27/64 inches)
Basic tool body thickness	58.1 mm (22 7/8 inches)
Tool milling width	60.5 mm (23 13/16 inches)
Tool mounting hole	30 mm (1 3/16 inches)
Hose connector diameter	58 mm (2 9/32 inches)
Weight	10.4 kg (10.58 lbs)
Dimensions (W x L x H)	340 x 420 x 280 mm (13 25/64 x 16 17/32 x 11 1/32 inches)

### as cross-cut milling system

Milling depth 0°	44 mm (1 47/64 inches)
Milling length	370 mm (14 9/16 inches)
Weight with guiding device	12.1 kg (26.67 lbs)
Dimensions incl. guiding device (W x L x H)	370 x 810 x 280 mm (14 9/16 x 31 57/64 x 11 1/32 inches)

## 2.5 Emissions

The declared noise emission values have been measured in accordance with EN 62841-1 and may be used for comparing the tool with another and also in a preliminary assessment of exposure.



### Danger

The noise emissions during actual use of the power tool can differ from the declared values depending on the ways in which the tool is used especially what kind of workpiece is processed.

Always wear hearing protection, even when the power tool is running idle in addition to the trigger time!

### 2.5.1 Noise emission specifications

Noise emission values determined according to EN 62841-1 and EN 62841-2-5:

Sound pressure level	$L_{PA} = 95 \text{ dB (A)}$
Uncertainty	$K_{PA} = 1.5 \text{ dB (A)}$
Sound power level	$L_{WA} = 103 \text{ dB (A)}$
Uncertainty	$K_{WA} = 1.5 \text{ dB (A)}$

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

### 2.5.2 Vibration specifications

The typical hand-arm vibration is less than  $2.5 \text{ m/s}^2$ .

## 2.6 Scope of supply

Cross-cut milling system NFU50 complete with:

- 1 KKS-guiding device
- 1 milling head
- 1 lateral stop
- 1 position indicator
- 1 parallel stop cpl.
- 2 operating tools
- 1 operating manual
- 1 folder "Safety instructions"

## 2.7 Safety devices



### Danger

These devices are required for the machine's safe operation and may not be removed or rendered inoperative. If one of the safety devices is defective, return the machine to the MAFELL customer service for repair. Never repair the safety devices yourself.

The machine is equipped with the following safety devices:

- Upper stationary saw guard
- Lower retractable saw guard
- Large base plate
- Handles
- Index mechanism and brake
- Hose connector
- Lateral access protection

## 2.8 Intended use

The MAFELL cross-cut milling system NFU 50-18 is intended exclusively for processing wood and wood panel materials such as three-layer panels, Multiplex, Kerto (laminated veneer lumber) as well as wood fibre, insulating panels, Styrodur and polyurethane rigid foam.

Intended use is the making of grooves, flattenings and notches in materials. A secure support on the workpiece is required for all work. The machine can be used with or without guiding devices. Please observe the respective instructions in this operating manual when working with the different guiding devices. They form an integral part of the intended use. (see chapter 7.9 and 7.10)

The tool supplied was manufactured in accordance with the European standard EN 847-1.

The use of third-party tools is not permitted. Please make exclusive use of the tools recommended by MAFELL.

Only use original Mafell / CAS rechargeable batteries and accessories.

Battery packs marked with CAS are 100% compatible with CAS devices (Cordless Alliance System). See chapter optional accessories.

The use in industrial continuous operation is not permitted.

Any other use than described above is not permissible. The manufacturer shall not be liable for any damage arising from such other use; such use shall also void all guarantee and warranty claims.

So as to use the machine as intended, comply with the operating, maintenance and repair instructions specified by Mafell.

### 2.8.1 Plunge milling



### Danger

Danger of recoil during plunge milling! Plunging and reverse milling is not permitted!

## 2.9 Residual risks



### Danger

Even if used in accordance with its intended purpose and despite conforming with the safety instructions, residual risks caused by the intended use that can lead to health consequences will always remain.

- Touching the milling head in the area of the start-up opening.
- Touching the part of the milling head that protrudes below the workpiece when milling.
- Touching the milling head below the guiding device before it enters and after it exits the workpiece.
- Touching the milling head below the guiding device when it is lifted out when the machine has not been retracted to the safe position.
- Machine recoil when it gets jammed in the workpiece or when it moves backwards through the prefabricated groove, with the tool running or coasting down.
- Breakage and hurling out of the tool, parts of the tool or splinters.
- Hearing impairment when working for long periods without ear protectors.
- Emission of hazardous wood dusts when operating the machine for longer periods of time without extraction.

## 3 General safety instructions for power tools



### Danger

Always observe the following safety instructions and the safety regulations applicable in the respective country of use!

Please also read the safety information in the enclosed folder 070500 "Safety instructions" (according to standard EN 62841-1).

## 4 Safety instructions for all milling cutters

### 4.1 Milling process

- **Danger: Keep your hands away from the milling range and the milling tool. With your other hand, support the supplementary handle or the motor casing.** If both hands are holding on to the milling cutter they cannot get hurt by the milling tool.
- **Never reach under the workpiece or under the guiding system during milling.** The guard cannot protect you from the milling tool when your hands are under the workpiece.
- **Never support the workpiece to be milled in your hand or over your leg. Secure the workpiece against a sturdy support.** It is important to securely fasten the workpiece to minimise the risk of body contact, jammed milling tool or loss of control.
- **Always hold the power tool by the insulated gripping surfaces when carrying out work during which the bit may hit concealed power lines.** Contact with a live power line also energises the metal parts of the power tool and leads to an electric shock.
- **Use clamps or another practical way to secure and support the workpiece to a stable platform.** Holding the workpiece by your hand or against the body leaves it unstable and may lead to loss of control.

### 4.2 Kickback - reasons and corresponding safety instructions

A kickback is a sudden reaction due to a jammed, stuck or incorrectly aligned milling tool, which causes an uncontrolled milling cutter to lift off, disengage from the workpiece and move towards the operator.

If the milling tool gets jammed or stuck in the groove, it will block and the motor power will knock the milling cutter back towards the operator.

If the milling cutter is incorrectly aligned in the groove, the indexable cutters of the milling tool can get stuck in the wood surface, causing the milling tool to move out of the groove and the milling cutter to bounce back towards the operator.

Kickback is the result of milling cutter misuse and/or incorrect operating procedures or conditions. It can be avoided by taking proper precautions as given below.

- **Hold the milling cutter with both hands and bring your arms into a position where you are able to resist the kickback forces.** In case of a kickback, the milling cutter can bounce backwards, but suitable precautions allow the operator to control the kickback forces.
  - **If the milling tool gets stuck or you interrupt your work, switch off the milling cutter and keep it still in the material until the milling tool has stopped. Never try to remove the milling cutter from the workpiece or to pull it backwards while the milling tool is still moving, as this could cause a kickback.** Determine and rectify the cause of the jammed milling tool.
  - **If you would like to restart a milling cutter that is stuck in the workpiece, centre the milling tool in the groove and check whether the indexable cutters are stuck in the workpiece.** If the indexable cutters get stuck, the milling tool can move out of the workpiece or cause a kickback when the milling cutter is restarted.
  - **Support large panels to minimise the risk of kickback caused by a jammed milling tool.** Large panels tend to sag under their own weight. Support(s) must be placed under both sides of the panel, both near the groove and at the edge.
  - **Do not use any blunt or damaged indexable cutters and pre-cutters.** Milling tools with blunt or damaged indexable cutters and pre-cutters create narrow grooves, causing increased friction, jamming of the milling tool and kickback.
  - **Before starting to mill, tighten the depth and angle adjustments.** If the settings change while milling, the milling tool can get jammed and a kickback can occur.
  - **Use extra caution when milling into blind areas.** The penetrating milling tool may jam when milling into concealed objects that can cause kickback.
- touches neither milling tool nor other parts irrespective of the milling angle and depth.
- **Check the function of the spring for the lower guard. Have the milling cutter serviced prior to use if the lower guard and spring do not work properly.** Damaged parts, sticky deposits or accumulated chips will cause the lower guard to operate with a delay.
  - **Open the lower guard only for special types of milling, such as “angled milling”.** Open the lower guard using the pre-feed lever and release the lever as soon as the milling tool has penetrated the workpiece. During all other milling work, the lower guard is to operate automatically.
  - **Do not place the milling cutter onto the workbench or floor without the lower guard covering the milling tool.** An unguarded, coasting milling tool moves the milling cutter opposite to the milling direction and will mill whatever gets in its way. Keep in mind the coasting time of the milling tool.

## 5 Specific safety regulations

### 5.1 Working range

- Children and adolescents must not operate this milling cutter. This rule does not apply to young persons receiving training under expert supervision.
- Ensure that no persons are within the danger zone (Fig. 8).
- Never work without the protection devices required for the task to be completed and never modify anything on the milling cutter that could impair safety.
- Always wear your personal protective equipment while working (hearing protection, safety goggles, dust masks, safety footwear).
- Provide a free and non-slip location with adequate lighting.
- Examine the workpiece for foreign objects. Do not mill into metal parts, e.g. nails.
- Do not work on workpieces which are too small or too large for the capability of the milling cutter.
- Mount and fasten the milling tool appropriately. Immediately replace blunt or damaged indexable cutters and pre-cutters and fasten them so that they cannot become loose during operation.
- Never clamp the switch.

### 4.3 Function of the lower guard

- **Prior to every use, check whether the lower guard is closing properly. Do not use the milling cutter if the lower guard is not freely movable and does not close immediately. Never clamp or tie down the lower guard in an open position.** If the milling cutter is dropped inadvertently, the lower guard can get bent. Open the guard with the pre-feed lever and ensure that it moves freely and

- Before switching on, make sure that the milling tool is tightly secured and the wrench has been removed.
- Firmly hold onto the milling cutter already before switching it on.
- Begin milling the workpiece only once the milling tool has reached its full speed.
- An even forward feed during milling extends the service life of the indexable cutters and the milling cutter.
- Remove the machine from the workpiece only after the milling tool has come to a standstill.
- Switch off the machine and let the milling tool come to a standstill before making various angle and height adjustments on the machine.
- Do not clamp the mobile lower guard and do not remove any protective parts. Please note that the mobile lower guard consists of two parts - the lower guard and the side access protection.

## 5.2 Instructions on service and maintenance

- Remove the rechargeable battery from the machine prior to every tool change, adjustment and retooling work, maintenance, cleaning and prior to eliminating defects. This also includes removing jammed splinters.
- Clean the milling cutter regularly, in particular the adjustment devices and guides. This is an important safety factor.
- Only use original MAFELL spare parts and accessories. Otherwise, the manufacturer will not accept any warranty claims and cannot be held liable.

## 5.3 Note on rechargeable batteries

- Protect the machine and the rechargeable batteries from humidity!
- Do not throw the rechargeable batteries into a fire!
- Do not use any defective or deformed rechargeable batteries!
- Do not open the rechargeable batteries!
- Do not touch the contacts of the rechargeable batteries and do not short-circuit them!
- Ensure that the machine is switched off when you push in the rechargeable battery.
- A slightly acidic, combustible liquid may leak from defective li-ion rechargeable batteries! If any battery liquid is leaking and comes in contact with the skin,

immediately rinse with a copious amount of water. If any battery liquid gets into your eyes, rinse with clean water and immediately consult a doctor for medical treatment!

- Remove the rechargeable batteries from the machine before carrying out any setting, retooling, maintenance or cleaning tasks.
- Remove the rechargeable batteries when the machine is put down, transported or stored without supervision.

## 6 Setting / adjustment

### 6.1 Charging the rechargeable battery

Check whether the rated voltage of the rechargeable battery agrees with the information specified on the machine.

Rechargeable battery and charger are matched to each other. Only use original Mafell / CAS rechargeable batteries and chargers.

Before using a new machine, first of all charge the rechargeable battery.



The charging operation is described in the instructions supplied with the charger.

The rechargeable battery is equipped with a temperature monitoring system. This guarantees that the rechargeable battery is only charged in the temperature range between 0°C and 50°C. This achieves a long service life for the rechargeable battery.

A considerably shortened operating time per charging procedure means that the rechargeable battery is spent and needs to be replaced.



**Danger**

**Explosion hazard**

Protect the rechargeable battery from heat, fire and moisture.

Do not place the rechargeable battery onto heating appliances and do not expose the rechargeable battery to strong solar radiation for a longer period of time. Temperatures above 50°C are detrimental to the rechargeable battery. Allow a heated rechargeable battery to cool down before charging it.

The optimum storage temperature ranges between 10°C and 30°C.



Do not open the rechargeable battery and protect it from impacts. Keep the rechargeable battery in a dry and frost-proof place.



**Danger**

Cover the rechargeable battery's contacts if it is stored outside the charger. There is a fire and explosion hazard in case of a short circuit caused by metallic bridging.



Follow the instructions for the protection of the environment.

**6.2 Fitting the rechargeable battery**

Before inserting, check whether the rated voltage of the rechargeable battery agrees with the information specified on the machine.



**Danger**

There is an explosion hazard if the rechargeable battery is replaced incorrectly. Only replace the rechargeable battery with the same or equivalent type.

Slide the two rechargeable batteries one after the other into the two battery guides - next to the handle and at the rear of the handle - until the rechargeable batteries perceptibly engage.



Before using the machine, convince yourself that the rechargeable batteries are firmly seated in the machine.

**6.3 Removing the rechargeable battery**

Unlock the rechargeable batteries one after the other by pressing push button 21 (Fig. 5) and pull them out.



Do not use force to do so.

**6.4 Chip extraction**



**Danger**

Substances that are harmful to health must be taken up with an M-suction device.

Connect the machine to a suitable external dust extractor during all work generating a considerable amount of dust. The air velocity must be at least 20 m/s (65.6 ft / sec.).

The inside diameter of the hose connector 3 (Fig. 1) is 58 mm (2 9/32 in.).

The extraction nozzle can be rotated through 360°. It can thus be brought into the most favourable position for extraction. If you operate the machine without extraction, bring the extraction nozzle into a position where the chips are guided away from your working position.

## 6.5 Tool change



### Danger

Unplug the rechargeable battery for all service work.

The maximum permissible speed (indicated on the tool) must not be exceeded! See chapter 8.3 and 8.4 in this regard.

The operating speed must not exceed the maximum speed indicated on the tool.

Pay attention to the correct direction of rotation!

Clamp the tool so that it cannot become loose during operation. The tightening torque must be at least 20 Nm.

The blades must touch neither each other nor the clamping pieces.

Pay attention to cleanliness when changing tools. Clamping surfaces must have been cleaned from any soiling, grease, oil and water.

Check the tool clamping at regular intervals.

The tightening torque must be checked during installation, before every recommissioning and at regular intervals during longer lasting machining. Use a suitable torque wrench for the inspection.

## Tool change

- Pull out the rechargeable battery before a tool change.
- Put down the machine as shown in Figure 10.
- Press the push-button 2 (Fig. 2) and pull the locking lever 19 upwards. The shift lever 8 is now locked.
- Open the mobile guard 28 by means of pre-feed lever 1.
- Lock the tool with position indicator 29. Position the position indicator 29 in Pos. A (Fig. 10).
- Use the hexagon screw driver 23 to unscrew the cylinder head screw 15 counter clockwise; detach flange 27 and milling head 26.
- Clean the tool spindle and clamping surfaces of adhering chips and dust. Attach the tool. When doing so ensure that both drive pins on the spindle engage in both bores on the tool. If any dirt gets between the components or if the components are not correctly fitted, there is a risk that the milling head 26 may come loose during machining despite this procedure.
- Lock the tool with position indicator 29. Position the position indicator 29 in Pos. B (Fig. 10).
- Insert the cylinder head screw 15 and the flange 27 and tighten clockwise with hexagon screw driver 23 (at least 20 Nm).
- Caution: After the check and tool change, remove position indicator 29 and the hexagon screw driver 23 from the tool.
- Close the mobile guard 28 and press down the locking lever 19 (Fig. 2).

## Checking the tool clamping

- Unplug the power plug before checking the tool clamping.
- Put down the machine as shown in Figure 10.
- Press the push-button 2 (Fig. 2) and pull the locking lever 19 upwards. The shift lever 8 is now locked.
- Open the retractable saw guard 28 by means of plunge lever 1.
- Lock the tool with position indicator 29. Position the position indicator 29 in Pos. B (Fig. 10).
- To check the tool clamping: Firmly tighten the cylinder head screw 15 (at least 20 Nm).

## 6.6 Changing the indexable cutting insert



### Danger

The rechargeable battery must be pulled out before tool change and adjustment.

Install and remove the cutters in accordance with the instructions in the operating manual. Utmost caution is mandatory!

Clamping surfaces must have been cleaned from any soiling, grease, oil and water.

Observe the specified tightening torques! The clamping screws must be tightened only with the tools provided or with a tool of the same dimensions. No striking tools, levers, extensions or other tools may be used.

All blades must always be fitted in order to prevent imbalance.

The milling head (scope of supply) is equipped with 12 interchangeable carbide indexable cutting inserts. Resharpener is not possible. When blades are blunt, the carbide indexable cutting inserts are turned or replaced.

Only the screws and indexable cutting inserts provided for this purpose by MAFELL may be used.

- Remove the tool from the machine (see 6.5 Tool change, page 35).
- Loosen the countersunk screws on the tool with the wrench included in the supply.
- Clean all parts and cutter chambers of the tool.
- Turn the carbide indexable cutting inserts or replace them with new carbide indexable cutting inserts after they have been turned three times.
- Fasten the turned or new indexable cutting inserts with the countersunk screws and retighten the screws with the torx screw driver 22 (Fig 7) with 4 Nm.



Aluminium tools may only be deresinified with solvents which do not corrode the aluminium.

- Re-install the tool (see 6.5 Tool change, page 35).

## 6.7 Tool change of the adjustable groove cutter (special accessories)



### Danger

Unplug the rechargeable battery for all service work.

The maximum permissible speed (indicated on the tool) must not be exceeded! See chapter 8.3 and 8.4 in this regard.

The operating speed must not exceed the maximum speed indicated on the tool.

Pay attention to the correct direction of rotation!

Clamp the tool so that it cannot become loose during operation.

The tightening torque must be at least 20 Nm.

The blades must touch neither each other nor the clamping pieces.

Pay attention to cleanliness when changing tools. Clamping surfaces must have been cleaned from any soiling, grease, oil and water.

Check the tool clamping at regular intervals.

The tightening torque must be checked during installation, before every recommissioning and at regular intervals during longer lasting machining. Use a suitable torque wrench for the inspection.

- Pull out the rechargeable battery before a tool change.
- Put down the machine as shown in Figure 11.
- Lock the tool with position indicator 29. Position the position indicator 29 in Pos. A (Fig. 11).
- Use the hexagon screw driver 23 to unscrew the cylinder head screw 15 counter clockwise; detach flange 33 and the adjustable groove cutter 30.
- Clean the tool spindle and clamping surfaces of adhering chips and dust. Attach the tool. When doing so ensure that both drive pins on the spindle engage in both bores on the tool. If any dirt gets between the components or if the components are not correctly fitted, there is a risk that the adjustable

groove cutter 30 may come loose during machining despite this procedure.

- Lock the tool with position indicator 29. Position the position indicator 29 in Pos. B (Fig. 11).
- Insert the cylinder head screw 15 and the flange 33 and tighten clockwise with hexagon screw driver 23 (at least 20 Nm).
- Caution: After the check and tool change, remove position indicator 29 and the hexagon screw driver 23 from the tool.
- Close the mobile guard 28 and press down the locking lever 19 (Fig. 2).

### 6.8 Adjusting the milling cutter: Adjustable groove cutter (optional accessories)

The adjustable groove cutter 30 (Fig. 5) is an adjustable groove cutter with indexable cutting inserts, which can be adjusted to different milling widths. The adjustable groove cutter is available in two designs:

- Item No. 091899 with milling widths between 22 and 40 mm
- Item No. 091904 with milling widths between 15.4 and 28.4 mm

Different spacers are included with the adjustable groove cutter. These can be used to realise different intermediate widths.

#### Follow the procedure below:

- First compile the required adjustable groove cutter width with the enclosed spacers (the adjustable groove cutter without spacers has a groove width of 15.4 mm or 22 mm).
- Place the compiled spacer packet onto the pins in the rear part of the adjustable groove cutter (side without labelling).
- Place the spacers that are not required onto the front part of the adjustable groove cutter. Then join the front part of the adjustable groove cutter 30 (Fig. 5) and the inserted spacer packet.
- Now fasten both parts of the adjustable groove cutter with the front flange of the adjustable groove cutter 33 (Fig. 5) and mount the entire adjustable groove cutter onto the drive flange of the NFU50.



The adjustment range specified on the adjustable groove cutter may on no account be exceeded. Ensure that all the enclosed spacers are fitted at all times.

### 6.9 Indexable cutting insert change “adjustable groove cutter”



#### Danger

The rechargeable battery must be pulled out before tool change and adjustment.

Install and remove the cutters in accordance with the instructions in the operating manual. Utmost caution is mandatory!

Clamping surfaces must have been cleaned from any soiling, grease, oil and water.

Observe the specified tightening torques! The clamping screws must be tightened only with the tools provided or with a tool of the same dimensions. No striking tools, levers, extensions or other tools may be used.

All blades must always be fitted in order to prevent imbalance.

The adjustable groove cutter 30 (Fig. 5) is equipped with carbide indexable cutting inserts 32:

- 12 carbide indexable cutting inserts with Item No. 091899
- 10 carbide indexable cutting inserts with Item No. 091904

Resharpener is not possible. When blades are blunt, the carbide indexable cutting inserts are turned or replaced.

Only the screws and indexable cutting inserts provided for this purpose by MAFELL may be used.

#### Follow the procedure below:

- Remove the tool from the machine (see 6.7 Tool change of the adjustable groove cutter (special accessories), page 36).

- Loosen the countersunk screws 34 (Fig. 5) on the tool with the wrench included in the supply.
- Clean all parts and cutter chambers of the tool.
- Turn the carbide indexable cutting inserts or replace them with new carbide indexable cutting inserts after they have been turned three times.
- Fasten the turned or new indexable cutting inserts with the countersunk screws and retighten the screws with the corresponding wrench (Fig. 7) with 4 Nm.

The two parts have been inserted correctly if the rear of a cutter edge is resting against the carrier body and the countersunk screw can be screwed in that far that the surface of the countersunk screw is located below or on the same level as the surface of the indexable cutting insert (see Fig. 5).

## 7 Operation



During operation and given corresponding conditions - in particular if the air is dry, or if materials such as coated board materials are used and there is no anti-static suction hose - electrostatic discharges via the operator can occur. The electronic system's protective function is activated and the machine goes into a safe state. The machine switches off automatically.

### 7.1 Putting into operation

Personnel entrusted to work with the machine must be made aware of the operating instructions, calling particular attention to the chapter "Safety instructions".

### 7.2 Switching on and off

- **Switching on:** Press the switch-on lock 7 (Fig. 1) forward to unlock it. Then, with the switch-on lock depressed, press shift lever 8.

As this is a switch without locking device, the machine will only run for as long as this shift lever is pressed.

The built-in electronic system provides for jerk-free acceleration when the machine is switched on and readjusts the speed to the fixed setting.

In addition, the electronic system switches off the motor in case of overload, i.e. the tool will stop.

Release shift lever 8. Then switch the machine on again and continue milling at a reduced feed speed.

The setting wheel 20 (Fig. 2) can be used to adjust the milling head speed in a continuously variable manner between 4700 and 7100 rpm.

Level	Speed rpm
1	4700
2	5180
3	5660
4	6140
5	6620
6	7100

### Material groups

- Hardwood, softwood, plywood
  - Level: **4 - 6**
- Coated panel materials
  - Level: **4 - 6**
- Soft fibre
  - Level: **6**
- **Switching off:** To switch off, release the shift lever 8 (Fig 1). The built-in automatic brake limits the coasting time of the tool to approx. 2 s. The switch-on lock takes effect again automatically and secures the cross-cut milling system against accidental switch-on.

### 7.3 Milling depth adjustment

The milling depth is continuously variable between 0 and 50 mm.

#### Follow the procedure below:

- Press the push-button 11 (Fig. 2) and adjust the milling depth with the plunge handle 6.
- The milling depth can be read off the scale on the cover. The area of plunge handle 6 with the red background serves as indicator.

#### 7.4 Milling depth locking device / repeater depth stop

The milling depth locking device is used to lock the set milling depth. After defining the milling depth once, it can easily be set without measuring again.

**Follow the procedure below:**

- Set the machine to the desired milling depth.
- Open the clamping lever 14 (Fig. 2) and set the stop bar 16 downwards to the limit stop.
- Retighten the fastening lever 14 (Fig. 2).



At low milling depths, you must position the repeater depth stop adapter 52 (Fig. 2) underneath the stop bar 16.

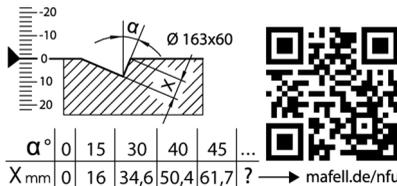
#### 7.5 Setting for working at a tilt

The milling unit can be set to any angle between 0° and 45° for both tilted milling and notch milling work.

- In order to incline it, bring the machine into home position and support it such that it is possible to tilt the milling unit.
- Unfasten the clamping lever 10 (Fig. 2).
- Adjust the angle according to the scale on the swivel segment.
- Retighten the clamping lever 10.



We provide a calculation tool for calculating the milling depth. You can access this tool via the QR code on the machine or the website specified on the label.



#### 7.6 Working with the parallel stop

The parallel stop 18 (Fig. 6) is used to work parallel to an already existing edge. The limit stop can be attached to the left or right of the machine.

- You can adjust the milling position after unfastening the wing screws 9 (Fig. 1) by moving the limit stop

accordingly and afterwards retightening the wing screws.

In addition, the parallel stop can be guided along a guide rail that is fastened on the workpiece. The possible adjustable distance on the right-hand side amounts to approx. 195 – 575 mm and on the left-hand side to approx. 130 – 370 mm.

#### 7.7 Working with the roller edge guide

The roller edge guide 20 (Fig. 6) is used to work parallel to an already existing edge. The limit stop can be attached to the left side of the machine.

- You can adjust the milling position after unfastening the wing screws 9 (Fig. 1) by moving the limit stop accordingly and afterwards retightening the wing screws.

Now the machine can be guided along a narrow workpiece running below the base plate.

#### 7.8 Grooves with F-guide rail

Setting the desired milling depth according to chapter 7.3.



Carry out groove milling using an F-guide rail. Wider grooves are achieved by laterally offsetting the guiding device from the right to the left.

#### 7.9 Working with the guide rail

It is recommended to use the guide rails (see Chapter 10, Optional accessories) with the adapter pair for machining notches.

**Follow the procedure below:**

- Attach the parallel stop 18 (Fig. 6) to the machine.
- Mount the adapter pairs 60 (Fig. 9) in the positions ZZ (Fig. 6) intended for this purpose.
- Hook the adapter pairs into the guide rail attached parallel to the milling groove.
- Set the machine to an inclination and depth as described under 7.4 and 7.5
- Move the milling cutter across the parallel stop bars to the desired position.
- Tighten the screws 9 (Fig. 1).

### 7.10 Working according to tracings with KSS-guiding device

- Secure the workpiece against movement.
- Adjust the milling depth.
- Hold the machine by both handles and push the two stop cams against the workpiece. Place the front part of the KSS-guiding device onto the workpiece. The left hand side of the milling head corresponds to the front edge of the guiding device.
- Switch on the cross-cut milling system (see 7.2 Switching on and off, page 38).
- Slide the machine evenly forward in milling direction.
- At the end of milling, switch off the cross-cut milling system by releasing the shift lever 8 (Fig. 1).
- Wait until the milling tool is completely stationary, then pull the machine back to its starting position while it rests on the workpiece and remove it from the workpiece in this position. This guarantees that the mobile lower guard 28 (Fig. 3) is completely closed. The starting position is signalled by the yellow label on the guiding device. The machine will be in the safe starting position if you pull back the machine behind the marking in the direction of "Safe".

### 7.11 Working with position indicator (for KSS-guiding device and F-rail)



Use position indicator 29 (Fig. 3) to align the KSS-guiding device. The position indicator shows the right side of the milling cutter, set the position indicator to the same angle as the machine. The position indicator is enclosed with the machine.

#### Follow the procedure below:

- Fasten the position indicator 29 with the wing bolts 9 (Fig. 3).
- Set the position indicator 29 to the same angle as the machine tilt. You can also determine the position of position indicator 29 by means of an auxiliary milling groove in the tool.
- The angle scaling refers to the right side of the milling head.
- Set the required milling depth and machine the workpiece.

### 7.12 Working with the lateral stop in combination with KSS-guiding device

The lateral stop 50 (Fig. 4) is used to work parallel to an already existing groove. Lock the stop in the guide groove of the KSS-rail. The lateral stop is preset to approximately 625 mm, fine adjustment at the stop is possible.

Different rafter spacings can be set via the markings X and Y at the face edge stop:

X = 625 mm with 60 mm milling head

Y = 600 mm with 46 mm milling head

#### Follow the procedure below:

- Unfasten the locking screw 53 with the wrench AF 5 that is kept on the position indicator.
- Turn the adjusting screw 54 in the corresponding direction.
- Retighten the locking screw 53.

## 8 Service and maintenance



### Danger

Unplug the rechargeable battery for all service work.

MAFELL machines are designed to be low in maintenance.

The ball bearings used are greased for life. When the machine has been in operation for a longer period of time, we recommend to hand the machine in at an authorised MAFELL customer service shop for inspection.

Only use our special grease, order No. 049040 (1 kg tin) for all greasing points.

Check the braking effect of your machine at regular intervals. If the braking effect worsens, always contact your MAFELL after-sales service to have the braking system serviced.

In order to check the safety functions, the machine must be handed in at a MAFELL service workshop for inspection at the latest after 3 years of use.

### 8.1 Storage

Clean the machine thoroughly if the machine is not used for a longer period of time. Spray blank metal parts with a rust-proofing agent.

Store the machine only in dry rooms and protect it from the effects of weather.

## 8.2 Tools

The milling heads used on the machine should be regularly deresinified, as clean tools improve the cutting quality.

Deresinify them by placing them in petroleum or a commercially available deresinification agent for 24 hours.



Aluminium tools may only be deresinified with solvents which do not corrode the aluminium.

Promptly replace damaged clamping screws and cutting elements.

The design of progressive tools must not be modified during maintenance.

## 8.3 Tools of older machine types

It is not permitted to use older Mafell milling cutters. The following are exempted from this:

- Milling head Ø 163 x 46 mm (6 27/64 x 1 13/16 inch) (Order No. 091902)
- Milling head Ø 163 x 60 mm (6 27/64 x 2 23/64 inch) (Order No. 091901)
- Groove cutter Ø 163 x 15.4 - 28.4 mm (6 27/64 x 6 1/16 - 113/16 inch) (Order No. 091904)
- Groove cutter Ø 163 x 22 - 40 mm (6 27/64 x 55/64 - 137/64 inch) (Order No. 091899)

## 8.4 Tools for NFU 50-18

The tools mentioned in chapter 8.3 are approved for use with machines with the item numbers 91F302 and 91F303, although the maximum speed of the machine exceeds the permissible maximum speed  $n_{max}$  on the milling cutters.



The approval is granted on the basis of successfully passed type examination tests on the milling cutters pursuant to DIN EN 847, Machine tools for woodworking - Safety requirements. According to the tests, the tools are approved for a speed of  $n_{max}$  7200 rpm.

## 8.5 Transport

The included Li-ion rechargeable batteries are subject to the requirements of dangerous goods legislation. The rechargeable batteries can be transported by the user on the road without any further requirements.

For the dispatch by third parties (e.g.: air transport or forwarding agent), special requirements for packaging and labelling must be observed. In this case, a dangerous goods expert must be consulted when preparing the package.

Only dispatch rechargeable batteries if their housing is undamaged. Tape open contacts and pack the rechargeable battery so that it does not move in the packaging.

Please also observe any further national regulations.

## 8.6 Disposal of rechargeable batteries/batteries



Electrical tools, rechargeable batteries, accessories and packaging should be recycled in an environmentally friendly manner.

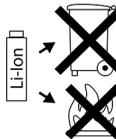
Do not dispose of electrical tools together with domestic waste!

### For EU countries only:



According to the European Directive 2012/19/EC, power tools that are no longer serviceable, and according to the Battery Regulation (EU) 2023/1542, defective or used rechargeable batteries/batteries must be collected separately and recycled in an environmentally sound manner.

### Rechargeable batteries/batteries:



**Li-ion:**  
Please comply with the information in Section "Transport", page 41.

### Subject to changes.

## 9 Troubleshooting



### Danger

Determining the causes for existing defects and eliminating these always requires increased attention and caution. Unplug the rechargeable battery beforehand!

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

Defect	Cause	Elimination
Machine cannot be switched on	Rechargeable battery is discharged	Charge the rechargeable battery
	Rechargeable battery not engaged in end position	Allow rechargeable battery to engage completely
	The second rechargeable battery is missing	Insert the rechargeable battery correctly and ensure it is properly seated.
Rechargeable battery almost empty, an LED on the rechargeable battery is flashing.	Electronic system protects the rechargeable battery from deep discharge.	To check its state of charge, press the button on the rechargeable battery. If only one LED is still glowing, recharge the rechargeable battery.
Overload, machine switches off.	A sustained load has overheated the machine or the rechargeable battery. A warning signal is sounded (beep tone). As long as the machine or the rechargeable battery have not cooled down, every further attempt to switch on the machine will result in another beep tone.	Allow the machine and the rechargeable battery to cool down. The rechargeable battery can be cooled down much faster with a charger with air cooling. The machine can also be cooled down much faster by using a different rechargeable battery and idling the machine.
The machine switches off at a sudden increase in load.	The sudden increase in load also causes the current that is required for the machine to rise. A warning signal is sounded (beep tone). This rise in current, which occurs when there is a sudden blockage or kickback, is measured and then leads to the machine being switched off.	Switch off the machine by releasing the switch trigger. Afterwards, you can switch the machine back on again and resume work as normal. Try to avoid further blockages.

Defect	Cause	Elimination
The machine switches off during operation	Electrostatic charge. The electronic system's protective function is activated and the machine goes into a safe state. The machine switches off.	Switch the machine on again
	Machine overloaded	Reduce feed speed Turn or replace carbide indexable cutting inserts
Burn marks on the milled surfaces	Tool unsuitable or too blunt for the work process	Replace tool Turn or replace carbide indexable cutting inserts
Chip ejection blocked	Wood is too damp	Clean chip ejection Use dry wood
	Milling without extraction	Connect machine to an external extraction system
	Large wood chip in ejector or extraction hose	Clean machine or hose Only with unplugged rechargeable battery
	Too many chips accumulating	Reduce feed speed
Increased vibration and poor milling pattern	Cutter head comes loose	Take the machine to a MAFELL customer service shop
Milling tool cannot be released/tightened	Friction clutch activates	Lock tool with position indicator (see chapter 7.5)
Lower mobile protective cover does not close or closes only slowly	Chips and pieces of wood in the bottom mobile protective cover	Remove chips and pieces of wood
Sudden smoke emission from the motor casing	Overload of the machine's electronic system	Interrupt the power supply by removing the battery pack. The smoke emission stops. <b>Do not insert a rechargeable battery! Avoid inhaling the smoke!</b>

## 10 Optional accessories

- Guide rail length 3 m (2 parts with connector) Order No. 037037
- Guide rail length 3 m (1 part) Order No. 200672
- Guide rail extension length 1.5 m Order No. 036553
- Adapter pair for parallel stop Order No. 037195
- Guide rail F 80, 800 mm long Order No. 204380
- Guide rail F 110, 1100 mm long Order No. 204381

- Guide rail F 160, 1600 mm long	Order No. 204365
- Guide rail F 210, 2100 mm long	Order No. 204382
- Guide rail F 310, 3100 mm long	Order No. 204383
- Accessories for guide rail:	
- Connecting piece F-VS	Order No. 204363
- Sliding bevel segment F-WA	Order No. 205357
- Rail bag TZ-FST1600	Order No. 095257
- Rail bag kit F160/160 consisting of: 2 x F160 + connecting piece + 2 screw clamps + rail bag	Order No. 209591
- Rail bag kit F80/160 with sliding bevel segment consisting of: F80 + F160 + connecting piece + sliding bevel + 2 screw clamps + rail bag	Order No. 209592
- End caps packed F-EK	Order No. 205400
- Adhesive profile packed F-HP 6.8M	Order No. 204376
- Splinter guard packed F-SS 3.4M	Order No. 204375
- Tension clamp packed F-SZ 180MM (2 pcs)	Order No. 207770
- Recoil stop packed F-RS	Order No. 202867
- Roller edge guide K85-UA	Order No. 205166
- Adjustable groove cutter Rd153-22-40x30	Order No. 091899
- Adjustable groove cutter NFU-VN28	Order No. 091904
- Indexable cutting insert (1 pc.)	Order No. 201927
- Guiding device L packed	Order No. 208171
- Cutter head ø 163 x 46 mm	Order No. 091902
- Cutter head ø 163 x 60 mm	Order No. 091901
- Rechargeable battery PowerTank 18 M 99 LiHD	Order No. 094503
- Rechargeable battery PowerTank 18 M 144 LiHD	Order No. 094498
- Rechargeable battery PowerTank 18 M 144 LiHDX	Order No. 094520
- Rechargeable power station APS M	Order No. 094492
- Rechargeable power station APS M+	Order No. 094509
- Rechargeable PowerStation APS M+ - GB	Order No. 094511

## 11 Exploded drawing and spare parts list

The corresponding information in respect of spare parts can be found on our homepage: [www.mafell.com](http://www.mafell.com)