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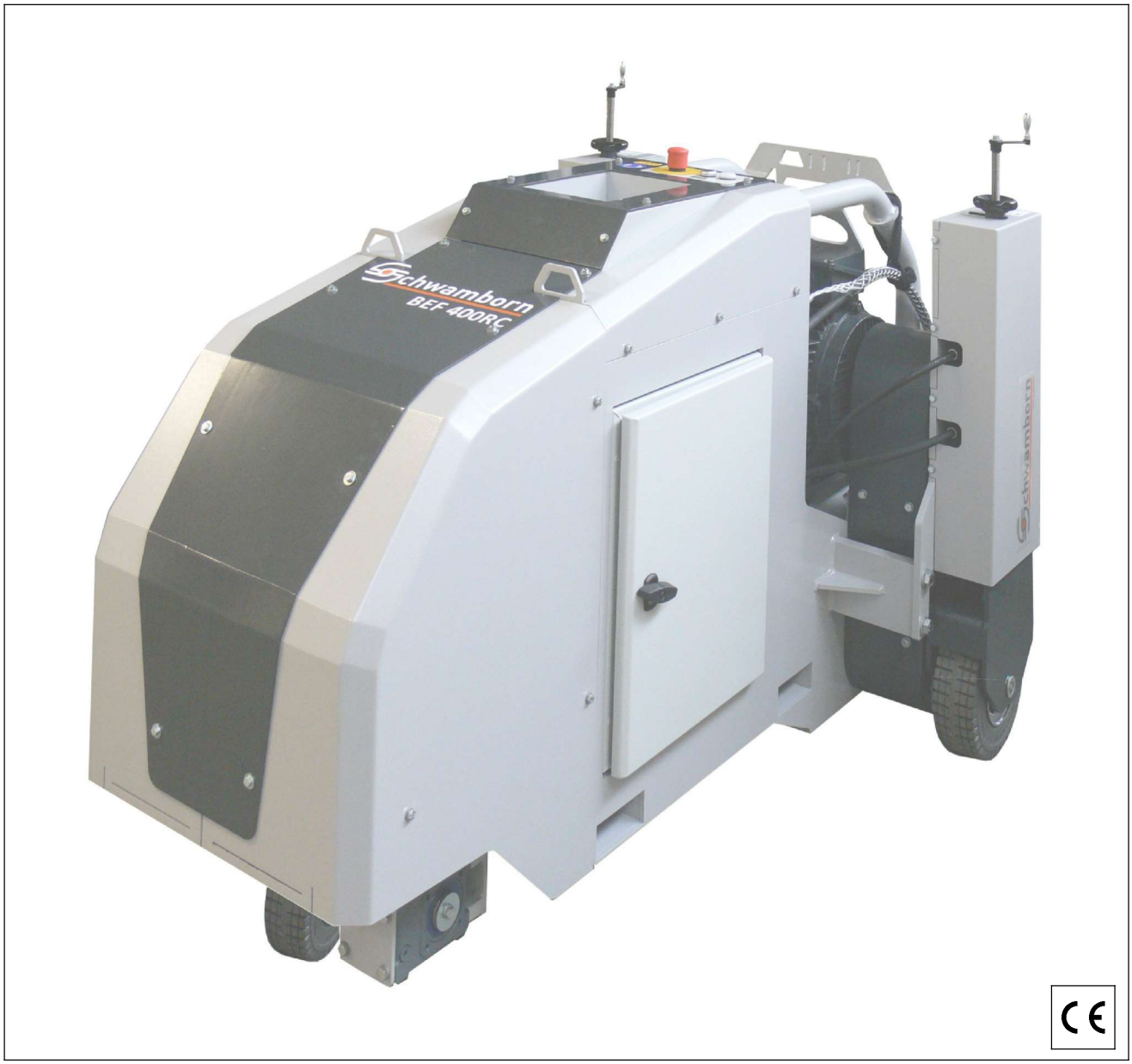

EN BEF 400RC floor milling machine with remote control
Translation of the original operating manual

BEF400RC-en-221018

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Document: BEF400RC-en
Publication date: 18-10-2022

Contents

1 Important notes

1.1 Liability and warranty

Liability or warranty is excluded in the following cases:

— The notes or instructions in the operating manual were not observed.
— The machine or its equipment were improperly operated.
— Maintenance was carried out inadequately or incorrectly.
— The specified genuine spare parts were not used.
— The protective equipment was not used, was modified or was removed.
— Spare parts or wearing parts were installed or used,
which have explicitly not been approved by Schwamborn Gerätebau GmbH.
— The specified connection values and ambient conditions were not observed.
— An unsuitable dust extraction has been used.

If the product described here is modified without the consent of the manufacturer, then said manufacturer is not responsible for any damage that may be incurred. Any such action will void the warranty.

1.2 Intended use

The machine may only be used with the accessories supplied by the manufacturer for milling out or cutting:

— Concrete
— Coatings
— Levelling compound
— Balancing compound
— (Road) marks
— Slots
— Asphalt

Any other usage of the machine can lead to dangerous situations and is prohibited.

Risk of damage due to dirt deposits.
Checks must be carried out at short intervals.

To ensure the intended use of the machine, follow the instructions in the operating manual, paying particular attention to any warnings and instructions relating to operation, cleaning and maintenance.

Before using the milling machine, the operating personnel must have carefully read and understand this operating manual.
Always keep this operating manual close at hand for reference.

The documents and operating manuals of the suppliers (milling motor etc.) **must be read and complied with.**

If the machine is on loan to other persons, the operating manual needs to be provided with the machine and its importance must be made clear.

1.3 Copyright

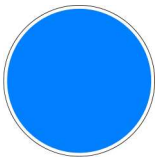
1.4 Symbols used

The following symbols are used in this documentation:

Safety instruction
This symbol describes warnings, prohibitions and directions indicating dangers that must be respected and observed. Some safety instructions are accompanied by relevant symbols.


Warning


Prohibition


Instruction

Important text

Precondition for or result of an action

7. **Instruction for action, the sequence of which must be followed exactly.**

— **List or unstructured sequence**

Additional note
This symbol indicates additional information.

→ **Reference to text passages or figures**

1.5 Explanation of terms

Manufacturer
Schwamborn Gerätebau GmbH is referred to as the manufacturer in this operating manual.

Machine
The floor milling and cutting machine with remote control BEF 400RC is referred to as the machine in this operating manual.

Tool
The drum-shaped milling tool or cutting tool is referred to as the milling rotor in this operating manual.

2 Safety

2.1 Accident prevention and safety

The following instructions comply with legislation, directives and publications such as:

— EU Machinery Directive
— EU Product Liability Directive
— Law on Technical Work Equipment
— Law of Device Safety
— Law on Product Liability

All laws and regulations, accident prevention guidelines and generally recognised safety rules must be complied with when working on and with the machine.

2.2 Safety instructions

This chapter contains a summary of the most important information on safety when handling the machine.

This machine incorporates state of the art technology and was built in accordance with recognised safety rules. This ensures that the highest possible standards of occupational safety are maintained. However, the machine could still endanger the health and lives of the personnel or cause material damage.

⚠ **Proceed with the greatest care and caution.**

⚠ **The machine may only be operated by persons who have been assigned to do so and who have the appropriate training and qualification. Operation of the machine by persons not yet of age is only permitted as of the age of 16, after receiving instructions and within the scope of training under supervision. The instruction of the operating personnel and of the maintenance personnel must be documented** (→ Chapter 12, page 32)**.**

⚠ **Persons under the influence of alcohol, other drugs or medication that affect their ability to react may not work on or with the machine.**

⚠ **A general inspection of the machine must be conducted before starting up the machine! In doing so, pay special attention to damaged or loose parts and wear. The machine may only be put into operation in perfect technical condition.**

⚠ **Automatic movements and loud noises may cause injury. All persons in the working area of the machine must use the following equipment:**
— Suitable, tight-fitting work clothing
— Safety footwear
— Hearing protection

⚠ Risk of injury due to high temperature at the milling motor, drive elements and milling rotor. These parts may still be hot after operation.

⚠ Do not operate the machine in areas where there is risk of explosion or near flammable materials.

⚠ Risk of injury from moving machine components. Limbs and clothing can be drawn in.

⚠ Risk of injury from parts expelled during milling and during cutting.
The surface to be milled must be free of obstacles, soiling and loose objects that can be expelled during milling.

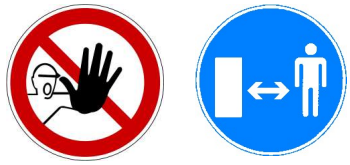
⚠ Risk of injury from the accumulation of dust during milling work.
The machine may only be operated with an appropriate dust extraction system (→ Chapter 5.6, page 19)!

⚠ There is a risk of injury when working with hazardous materials (e.g. asbestos).
Eating, drinking and smoking are prohibited at the workplace in these cases. The corresponding national and international laws and regulations must be complied with.

⚠ Hydraulic oil is hazardous to the environment and must not get into the groundwater.

⚠ The function and safety of the machine can only be ensured if the necessary inspections, maintenance and repair work are carried out.

⚠ If any defects are found on the machine that could endanger people or damage property, stop the machine immediately and ensure that it cannot be used again until all repairs are completed (→ Chapter 5.7, page 24).



⚠ The operating and maintenance personnel responsible for the machine must ensure that no one can enter the machine's danger zone during operation or maintenance work.

⚠ Adding to or modifying the machine in any way that could compromise operating safety is prohibited.

⚠ It is prohibited to transport persons with the machine.

⚠ The machine must not be used as a tractor.

⚠ Troubleshooting may be carried out by trained technicians only.

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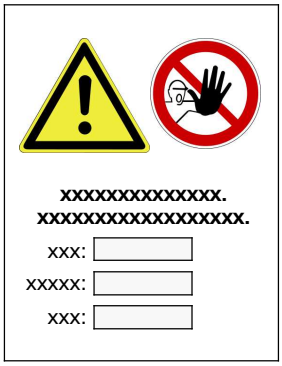
Risk of injury
from high voltage.
All repairs to the electrical system may only be carried out by skilled electricians.
Prior to doing any work on the electrical system and prior to starting, maintenance, cleaning, repairs or similar work, do the following:
— Disconnect the power plug [22]

Safety symbols may not be modified or removed. The owner must replace damaged or no longer legible safety instructions on the machine.

If certain devices need to be switched on during machine set-up, maintenance, repairs or other similar tasks, do the following:
Attach a clearly visible operation prohibition sign with the following information:
- Do not operate. Work in progress.
- Work location
- Date (start of work)
- Name of person responsible

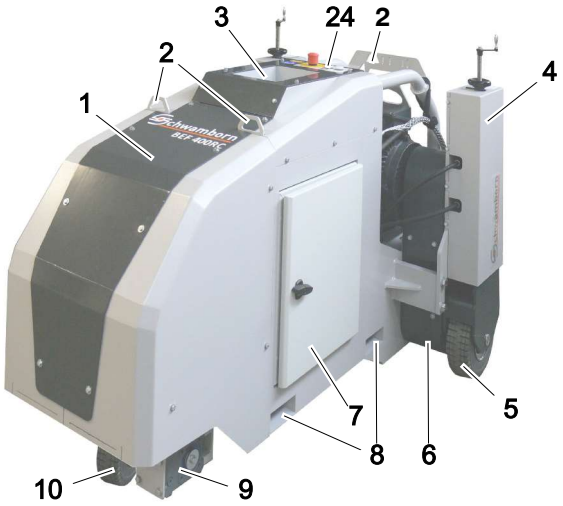


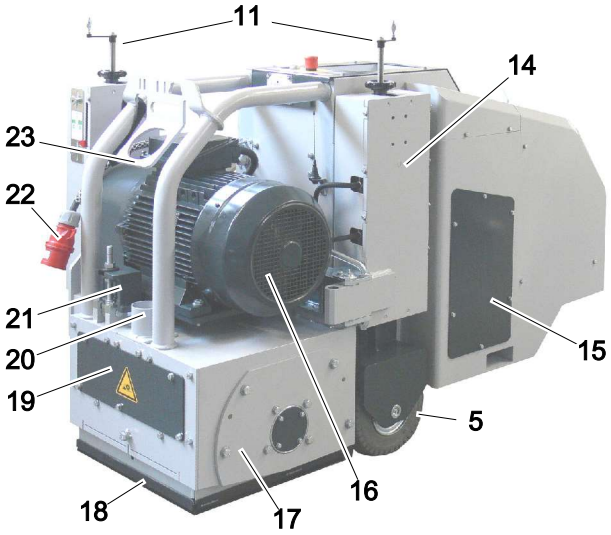
Dispose of used operating fluids and parts in accordance with all applicable laws, regulations and rules.

3 Machine elements

Entire machine

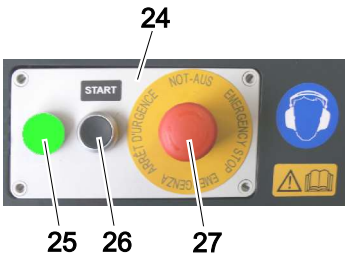
1 Electrical system, hydraulic system and control system
2 Attachment for lifting gear
3 Box for the remote control
4 Left support (swivelled out)
5 Support wheel
6 V-belt cover
7 Switch box
8 Bags for transport with an industrial truck with lifting device (e.g. forklift truck)
9 Drive motor with gearbox
10 Feed wheel
11 Stop adjustment (crank with clamping wheel)
14 Right support (swivelled in)
15 Electrical system, hydraulic system
16 Milling motor
17 Bearing plate
18 Extraction box
19 Inspection opening
20 Suction nozzle
21 Belt tensioner
22 CEE connector
23 Suction hose guide





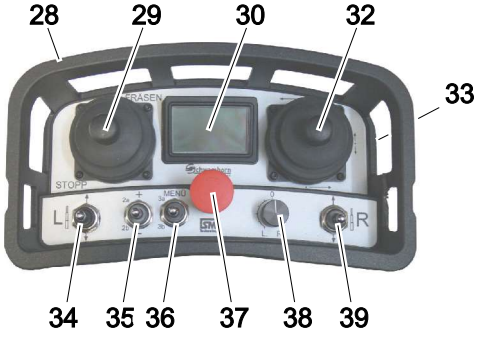
Control panel

24 Control panel
25 Indicator light
26 Start *button*
27 EMERGENCY STOP button



Remote control

28 Remote control
29 Milling / stop *joystick*
30 Display
32 Driving / steering *joystick*
34 Left support *pushbutton*
35 Milling speed *pushbutton*
36 Menu *pushbutton*
37 EMERGENCY STOP button
38 Direction adjustment
39 Right support *pushbutton*



3.1 Menu

At the remote control [28] you can use the *Menu* pushbutton [36] to control the display [30] and the menu functions.

The manufacturer strongly recommends that you practice using the menu sufficiently before working.

— Press the *Menu* pushbutton in the ↑ direction:

- The display moves on by one menu item.
- The current menu item is highlighted in colour . The function to be executed is indicated by a check-mark ☑

— Press the *Menu* pushbutton in the ↓ direction:

- The displayed function is confirmed or executed.

If at ESC ↻ nu item, the *Menu pushbutton is pressed* in the ↓ direction, the menu display is closed.

3.1.1 Settings

Manual mode

In manual mode, the milling motor can be switched on and off without raising or lowering the milling rotor

Display in operation

Which display is shown during operation can be selected here.
(Partially in mains operation only).

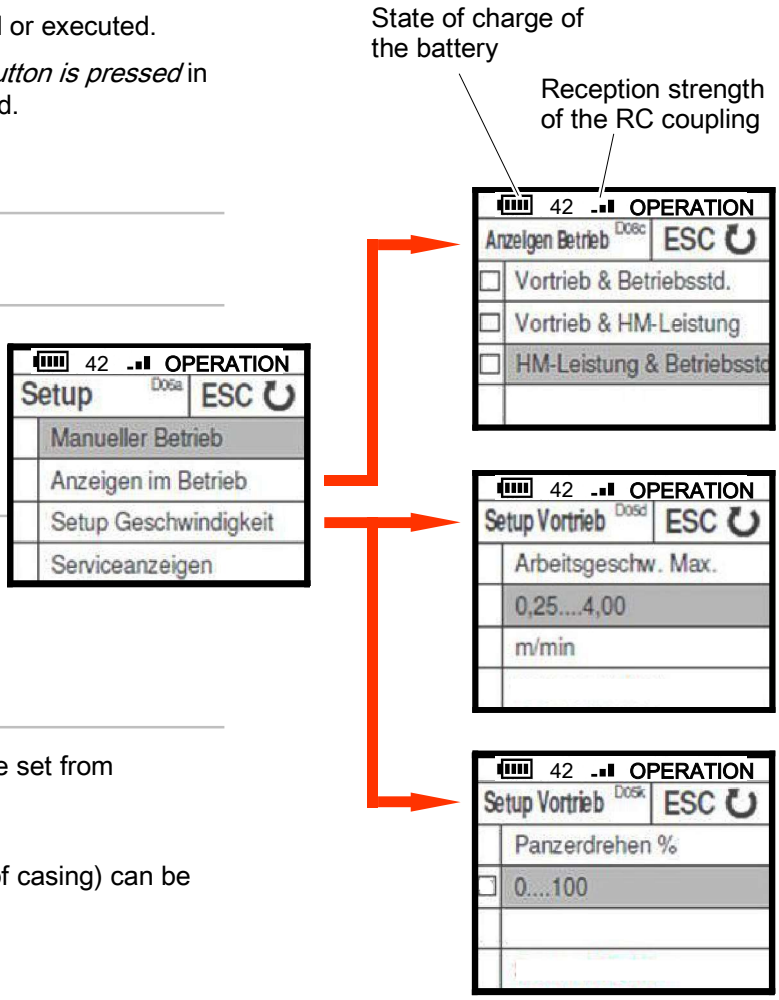
Setup speed

The maximum milling speed (advance) can be set from 0.25 m/min to 4.00 m/min.
(Partially in mains operation only).

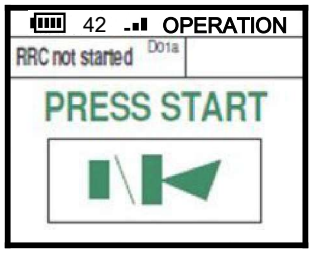
The angle when turning on the spot (turning of casing) can be set between 0° and 100°.

Setup speed

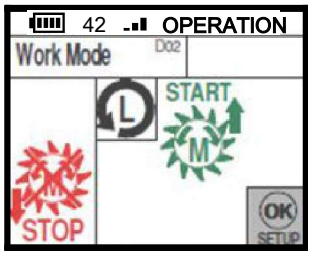
(Currently not used)



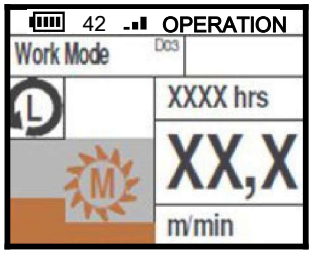
3.1.2 Display options



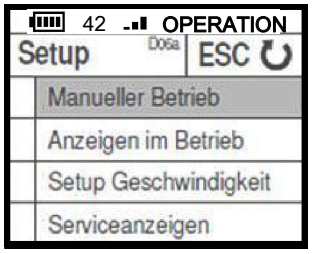
Standby mode:
Press the *Coupling* button [33] on the left side of the remote control (→ Chapter 5.2, page 13).



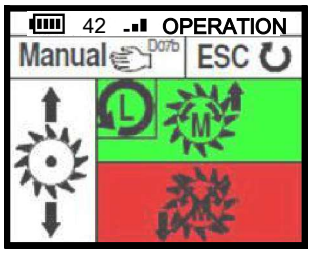
Main menu:
(In mains operation only).
The milling motor can be switched on and off.
The machine can be controlled using the *Driving* joystick [32]
(→ Chapter 5.4, page 17).



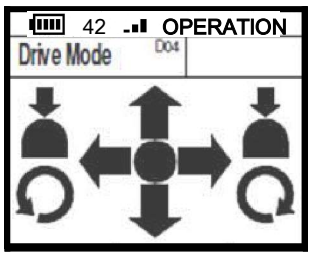
Work mode:
(In mains operation only).
The advance speed in m/min and the state of charge of the batteries in % are displayed
(→ Chapter 5.6, page 19).



Settings:
(→Chapter 3.1.1, page 10).



Manual mode:
(In mains operation only).
In manual mode, the milling motor can be switched on and off without raising or lowering the milling rotor
(→Chapter 3.1.1, page 10).



Travel mode:
The machine can be moved.
If you move the *Driving* joystick [32] to the left or right, rotation takes place on the spot.
(→Chapter 3.1.1, page 10).

4 Transporting and setting up the machine

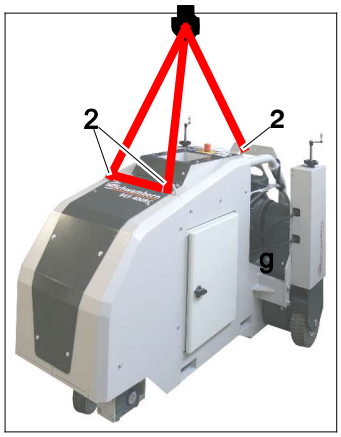


⚠ **Observe the safety instructions in Chapter 2.2.**

⚠ **When transporting the machine, all national and any international safety regulations must be observed.**
Wear appropriate, tight-fitting work clothing.
Wear safety footwear.

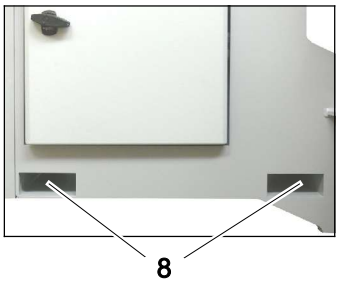
⚠ **Risk of damage.**
For transport, the milling rotor must be lifted off the floor (→ Chapter 5, page 13) **and both supports must be swivelled back and locked** (→ Chapter 5.6.1, page 21).

⚠ **Danger from suspended load.**
The machine can fall or tip over.
Observe the weight and centre of gravity of the machine.



ℹ The centre of gravity is in the center between the pockets [8].

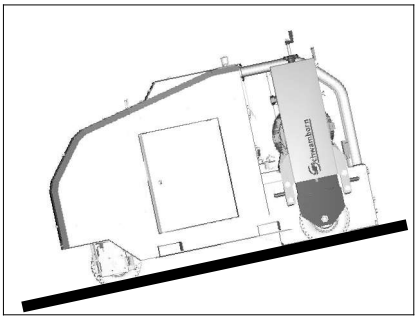
⚠ **Risk of damage.**
The machine may only be lifted in the following ways:
— **at the 3 attachment points** [2] (The manufacturer recommends using slings with snap hooks)
— **at low lifting heights and with a suitable industrial truck with lifting device** (e.g. forklift) **at the 4 side pockets** [8]



⚠ **Lift the machine only as much as necessary.**

⚠ **Risk of damage.**
No machine part may be crushed when lifting. Pay attention to the underfloor.

1. If necessary, lash the machine in place at the 4 side pockets [8].
2. Lift the machine off the transport device and place it on a flat, horizontal and firm surface.
3. Remove all transport aids.
4. Inspect the machine and all machine parts for damage that may have occurred during transport.



⚠ **Risk of injury / risk of damage.**
The ramp to be driven on must be sufficiently wide and must not be too steep.
Always drive downwards (downhill) **with the drive wheel first** (→Figure).
Observe Chapter 5.3, page 15.

▪▪▶ **Contact the freight carrier immediately in case of damage.**

5 Operation

⚠ **Observe the safety instructions in Chapter 2.2.**

⚠ **Only persons who have been instructed accordingly may work on and with the machine.** (→ Chapter 12, page 32).

5.1 Preparing for operation

1. Clean the machine if necessary (→ Chapter 6.4, page 26).
2. Remove tools and materials not required for operation from the machine.

5.2 Starting up the machine

⚠ **The machine may only be put into operation by qualified specialist personnel.**
A visual inspection of the machine needs to be carried out before starting up the machine.
In doing so, pay particular attention to wear, damage and loose components.

The manufacturer strongly recommends practising the use of the remote control of the machine and milling or cutting sufficiently before working.

The operating personnel have been instructed in all action and knowledge required for operation on the basis of the operating manual (→ Chapter 12, page 32). The operating personnel have practised the use of all operating elements and can operate the machine accurately and safely.

1. Check that the machine is in a correct condition:
   - There are no objects on the machine.
   - All hydraulic hoses and hydraulic connections are undamaged and tight.
   - The suction hose does not have any cracks or holes. The hose clamps have been tightened.
   - The milling rotor is correctly mounted and in usable condition.
   - The inclinometer is tight and working properly.
   - All covers have been fitted correctly.

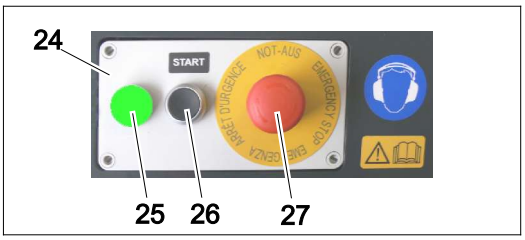
⚠ **The operating personnel responsible for the machine must ensure that no-one can enter the machine's danger zone during operation.**

2. Connect the machine's CEE connector [22] with an extension cable that complies with the regulations.

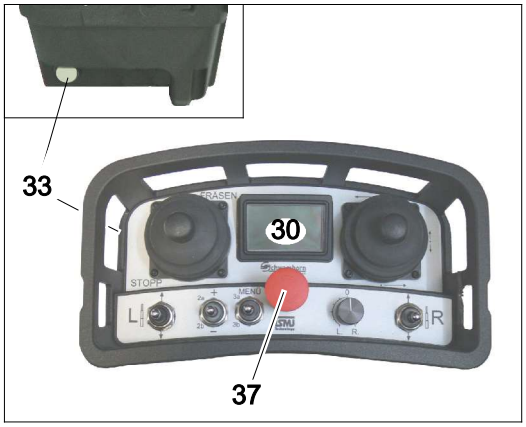
3. Connect the extension cable with the CEE socket (32A) connected in accordance with the regulations.
4. If necessary, unlock the EMERGENCY STOP button [27] (turn it clockwise ↻).

Risk of damage.
The milling drive must not be switched on if the milling rotor touches the ground or is blocked by foreign parts.

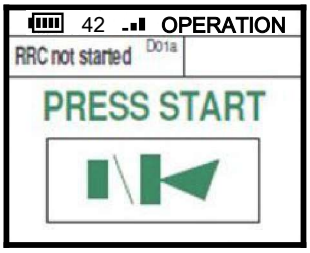
5. Press the *Start* button [26] until the indicator light [25] lights up.



6. If the indicator light lights up red:
   - The EMERGENCY STOP button [37] on the remote control has been pressed.
   - — Unlock the EMERGENCY STOP button (turn it anticlockwise ↻).
   - The indicator light lights up green.
     The machine control system is switched on.



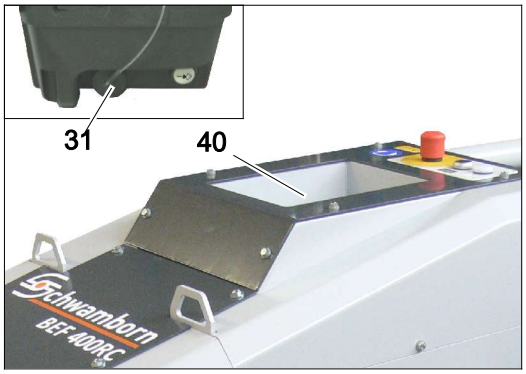
   - The display [30] is as illustrated.
7. Press the *Coupling* button [33] on the left side of the remote control.
   - The remote control is switched on and connected to the machine control system.
   - The display is as illustrated.



5.2.1 Emergency operation

If the remote control cannot be connected to the machine in a wireless manner:

1. Unscrew the cover [31] on the right side and plug the operating cable (part of the scope of delivery) into the socket.

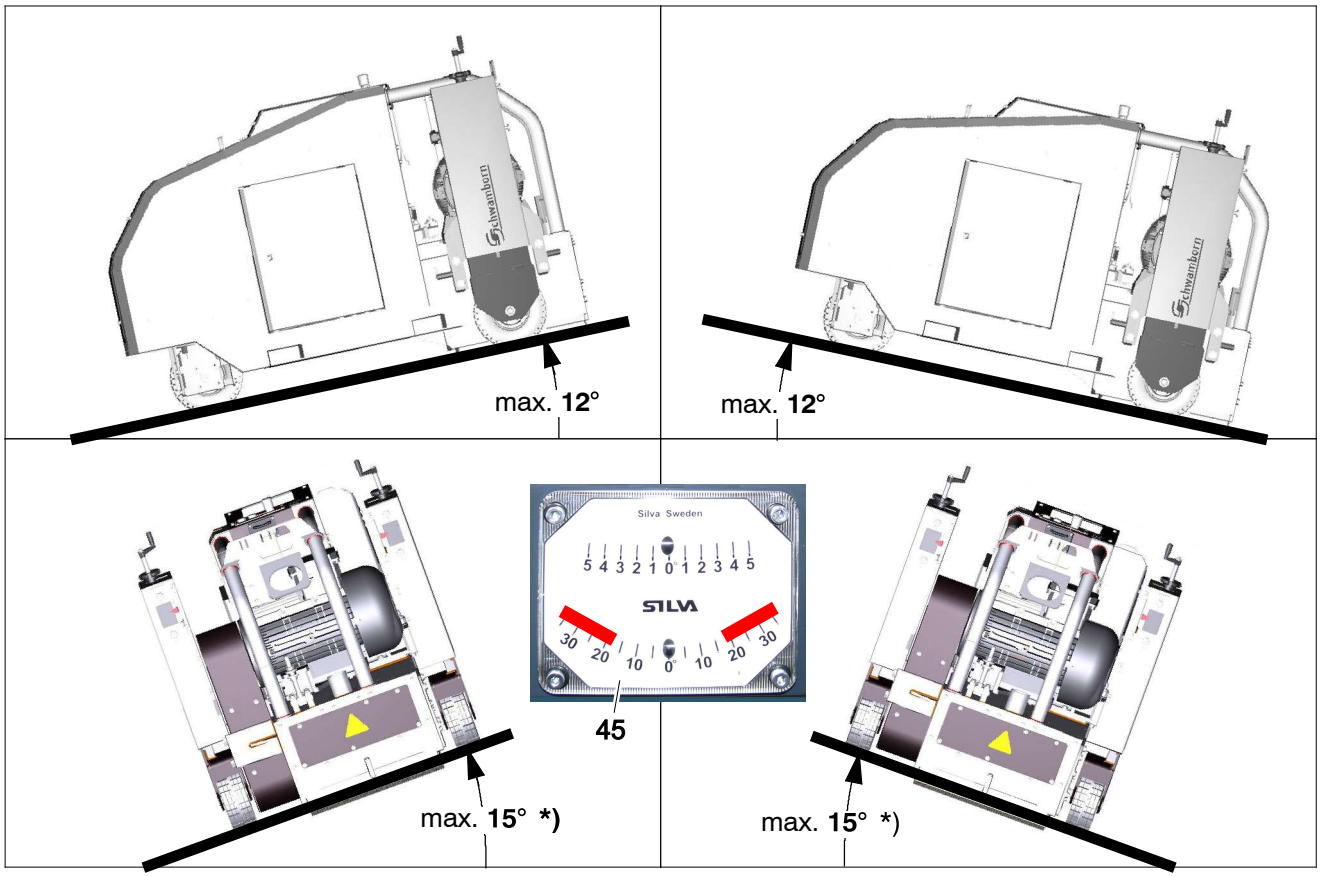


   - The operating cable is in the remote control recess. [40].
   - The machine can now be temporarily operated by cable.
2. Screw the cover back on after emergency operation.

5.3 Driving

⚠ Observe the safety instructions in Chapter 2.2.

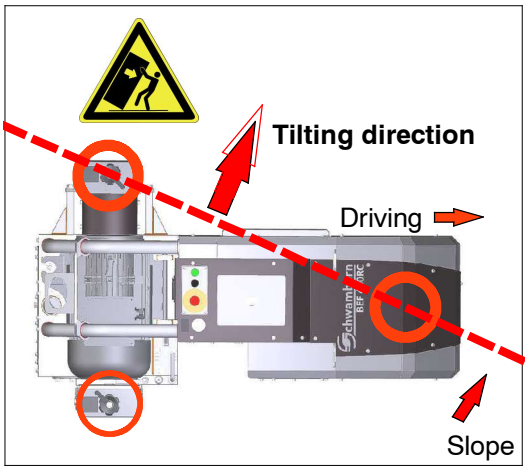
⚠ Risk of injury from tilting machine.
The angle limit values must not be exceeded (→ Figure).
Observe the inclination indicator [45].



⚠ Risk of injury from tilting machine.
*) When the support is swivelled forwards, the machine may only be driven on level ground.

⚠ Risk of injury from the machine tilting when driving on a sloping edge (e.g. a step - - - -,→ Figure)!

▪▪▶ The machine is supported by 3 wheels ○ and not by 4 wheels.

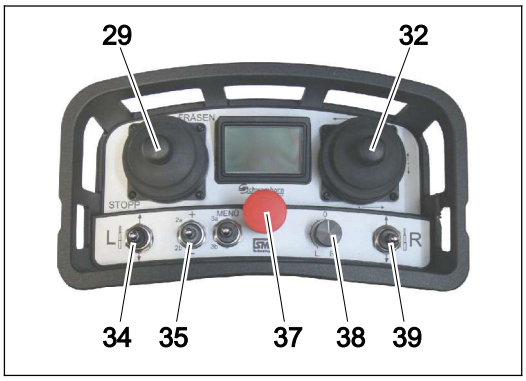


The machine can drive short distances without a high-voltage power supply in battery mode. The high-voltage power supply is required for the milling drum drive and for charging the batteries.

Danger due to automatically moving machine.
The operating and maintenance personnel responsible for the machine must ensure that no one can enter the machine's danger zone during operation or maintenance work.

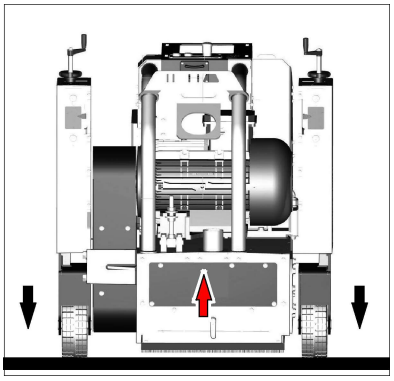
If the milling rotor is in operation, the running machine can only be stopped using the *Milling* joystick [29] or an EMERGENCY STOP button [27/37] .

The machine has been put into operation (→ Chapter 5.2, page 13).



1. Press the two *Support* pushbuttons [34/39] in the ↑direction.

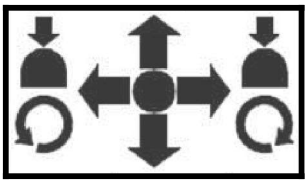
Both support wheels [5] are moved down to the stop and the milling rotor is lifted off the floor.



For manoeuvring and driving short distances, the milling drive that is raised off the floor can remain switched on.

2. Use the *Driving* joystick [32] to control the direction of travel.

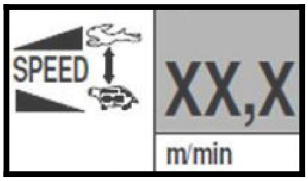
The display is as illustrated.



If the *Milling* joystick [29] is moved in the ↓direction or an EMERGENCY STOP button is pressed, the machine stops.
In automatic mode, both support wheels [5] are moved down to the stop. The milling rotor stops and is lifted off the floor.

The travel speed is permanently set to the maximum.

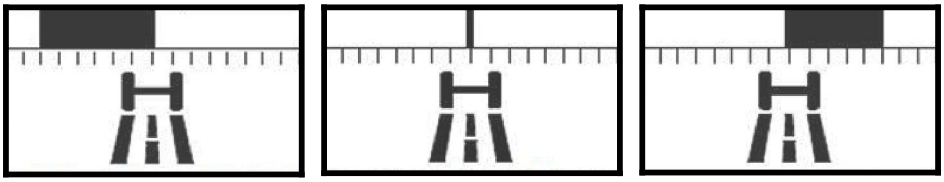
The travel speed in m/min is shown on the display.



The manufacturer recommends performing a test drive.

3. If necessary, correct the straight-ahead direction with the direction adjustment [38].

A correction is shown on the display.



5.4 Switching the milling drive on / off

Risk of injury from rotating milling rotor.
Do not reach or step near the milling rotor.
Never allow unauthorised persons to approach the machine.

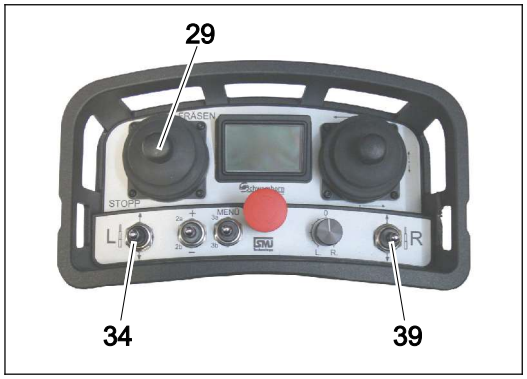
Switching on milling mode

✓ The machine and the remote control have been put into operation (→ Chapter 5.2, page 13).
The machine is connected to a CEE socket (32A) connected in accordance with the regulations.

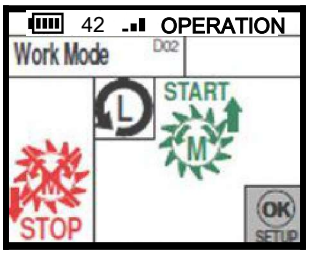
1. Press the two *Support* pushbuttons [34/39] in the ↑direction

✓ Both support wheels [5] are moved down to the stop and the milling rotor is lifted off the floor.

2. Move the *Milling* joystick [29] in the ↑direction.



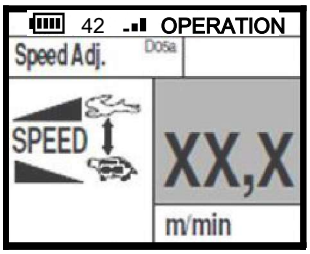
✓ The display is as illustrated.



✓ The milling drive is switched on and the milling rotor rotates.

Setting the milling speed

The milling speed can be changed at any time using the *Milling speed* pushbutton [35].



Switch off the milling drive

— Move the *Milling* joystick [29] in the ↓direction.

ℹ The machine stops.
Both support wheels [5] are moved down to the stop. The milling rotor stops and is lifted off the floor.

ℹ In an emergency, the machine can be switched off using the EMERGENCY STOP button [27]/[37].

Risk of injury from milling rotor still rotating after the machine is switched off.
The milling rotor may continue to turn for several seconds after switching it off (follow-up movement).

✓ The milling motor is switched off and the milling rotor does not rotate.

5.5 Setting the milling depth and milling angle

The *Support* pushbuttons [34/39] are used to change the length of the supports and thus to move the milling rotor up or down at the corresponding side. That determines the milling depth and the milling angle.

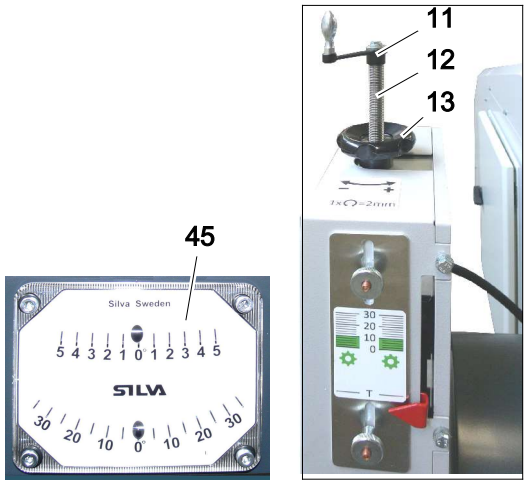
The machine has been put into operation (→ Chapter 5.2, page 13).
The milling rotor is raised.
The milling motor has been switched on (→ Chapter 5.4, page 17).

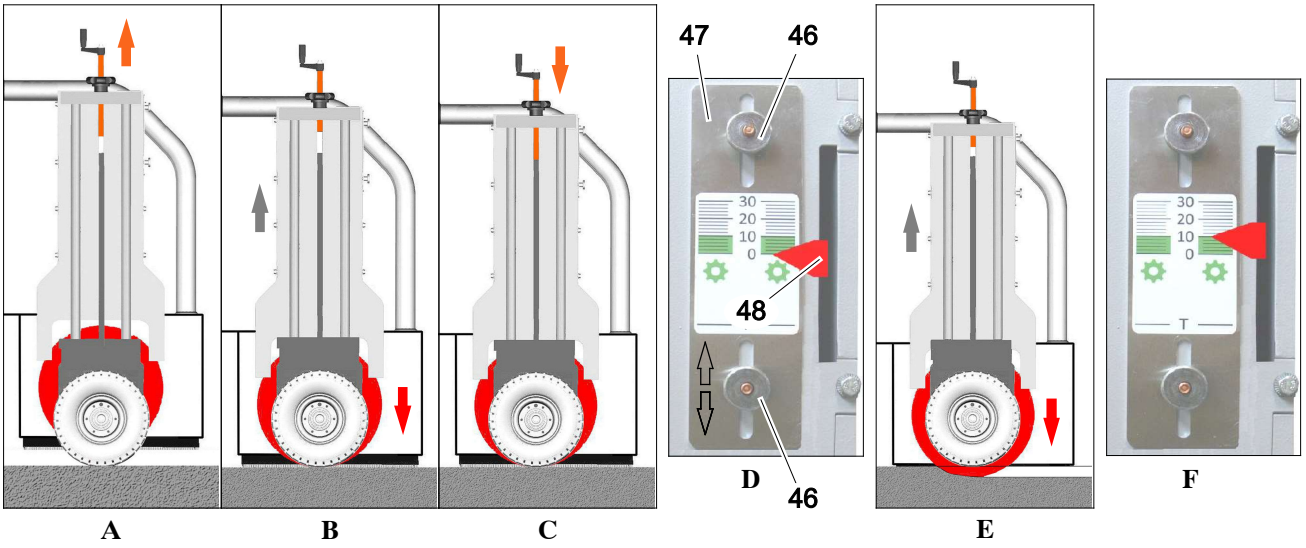
3. Loosen both clamping wheels [13] and use both cranks [11] to turn the stops [12] up anticlockwise ↺ (→ Figure **A**).

4. Press the two *Support* pushbuttons [34/39] alternately in the ↓direction.

Do not fail to observe the inclination indicator [45].
The inclination indicator [45] shows the angle of the milling rotor (on flat ground normally **0/0**).

5. Slowly lower the milling rotor **until it only just touches the floor** (→ Figure **B**).

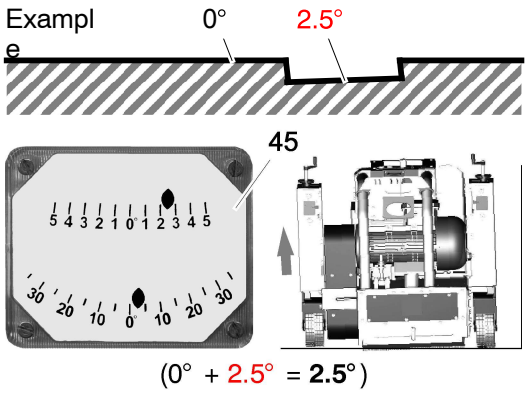




6. If the cut-out is to be at an angle (e.g. 2.5°) to the floor:

   — Press the *Support* pushbutton on the side that is to have the cut-out (e.g. [34]) in the ↓direction until the inclination indicator [45] shows the sum of the floor inclination (normally 0°) and the desired cut-out angle (e.g. 2.5°) (→ Figure).

It is essential to ensure that the inclination indicator [45] **always shows the required value from now on.**



Deviations can be corrected by different settings of the cranks [11].

7. Use both cranks to turn the stops [12] down clockwise ↻ up to the stop (→ Figure **C**).

The set milling depth is now **0 mm**.

8. Loosen the 2 knurled nuts [46] and move the milling depth scale [47] until the pointer [48] indicates **0** (zero) and tighten the knurled nuts.

9. Turn both cranks anticlockwise ↺ until the required milling depth is set (→ Figure **D**).

One turn of the crank corresponds to a lowering distance of 2 mm. Example:
Example: If a milling depth of 8 mm is required, both cranks must be turned 4 turns anticlockwise ↺.

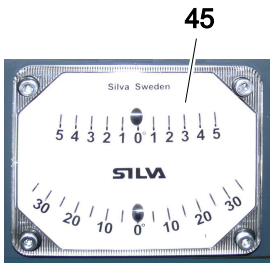
The maximum milling depth: 10 mm (green scale range)
Die maximum work depth for separating: 30 mm.
Do not fail to observe the inclination indicator [45].

Risk of damage due to excessive milling depth.
Milling with a greater milling depth than specified here will result in significantly increased wear on the milling rotor and the machine.
This must be avoided.

10. Tighten both clamping wheels [13].

If the cranks [11] were turned up to the stop anticlockwise ↺, the milling depth can also be set using the *Support* pushbutton [34/39] (inaccurate method).

The milling depth and the milling angle have been set.



5.6 Floor milling

Risk of injury from rotating milling rotor.
Do not reach or step near the milling rotor.
Never allow unauthorised persons to approach the machine.

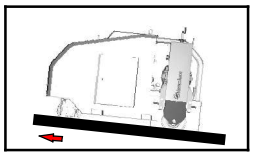
Risk of injury from automatic movements.
The operating personnel responsible for the machine must ensure that no-one can enter the machine's danger zone during operation.

Risk of injury from loud noises.
Use hearing protection.

Risk of injury
from accumulation of dust during milling work.
The machine may only be operated with water spraying and/or a dust extraction system with appropriate filtration.
Use respiratory protection.

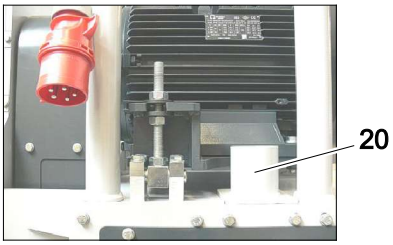
Risk of injury.
All persons in the working area of the machine must wear appropriate tight-fitting work clothing and safety footwear.

Risk of damage.
When milling on downhill slopes (from top to bottom), the milling results in an additional pushing effect.
When milling on uphill slopes, always mill "uphill" (from bottom to top) (→ Figure).



✓ The machine has been put into operation (→ Chapter 5.2, page 13).
The milling motor has been switched on (→ Chapter 5.4, page 5.4).
The milling depth and the milling angle have been set (→ Chapter 5.5, page 18).

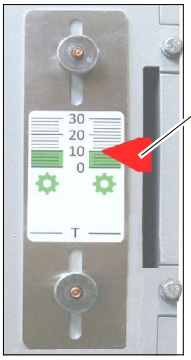
1. If necessary, connect an external dust extraction unit to the suction nozzle [20].



2. Check that the milling rotor is working correctly:

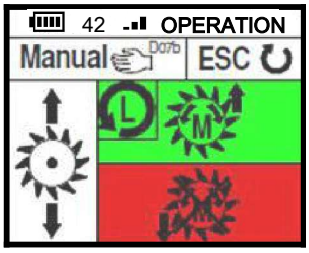
   ✓ The milling rotor rotates correctly and the drum seal is undamaged.
   There are no unusual noises.

   i Troubleshooting → Chapter 7, page 30.

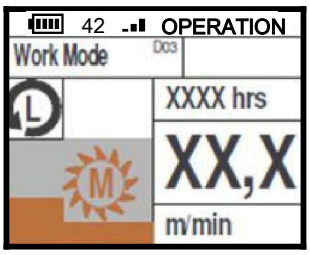


3. Press the two *Support* pushbuttons (34/39) in the ↓direction.

✓ The pointer [48] indicates the milling depth on the scale.
The display is as illustrated.



✓ The display shows the milling speed in m/min and the total operating time in hours (hrs) or the state of charge of the batteries (%).

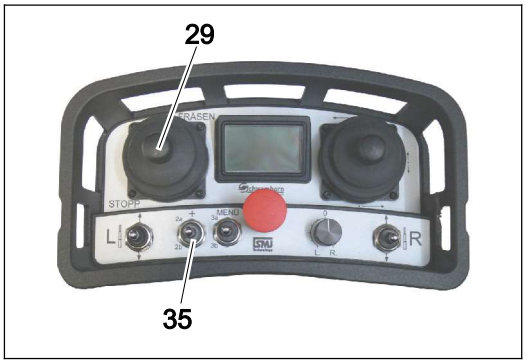


4. Set the milling speed using the *Milling speed* pushbutton [35].
5. **either:**
   Depending on the desired surface and milling depth, mill with a milling speed of 1 m/Min ... 2 m/Min.

   or:
   Depending on the desired cutting depth, cut with a cutting speed of 0.25 m/Min ... 0.6 m/Min.

i If the milling depth and/or the travel feed is excessive, the machine will not run smoothly. The milling pattern becomes wavy and uneven.

The milled material lies on the milled surface and can be removed there. Then, the milling depth and the milling quality can be checked.



6. At the end of the milled path:

   — Push the *Milling* joystick [29] in the ↓direction.

i The machine stops.
Both support wheels [5] are moved down to the stop. The milling rotor stops and is lifted off the floor.

Risk of injury from milling rotor still rotating after the machine is switched off.
The milling rotor may continue to turn for several seconds after switching it off (follow-up movement).

— Check the milling depth and the milling quality and make corrections, if necessary (→ Chapter 5.5, page 18).

7. If the machine does not run smoothly and/or the milling pattern is wavy and uneven:
   a. First reduce the travel speed (→ Chapter 5.5, page 18).
   b. If necessary, stop and reduce the milling depth: Turn both cranks anticlockwise ↻ until the required milling depth is set.
8. Press the two *Support* pushbuttons (34/39) in the ↓ direction.

✓ The rotating milling rotor is slowly lowered to the set milling depth in the floor.

9. Floor milling.

ℹ When the right support is swivelled forwards, only corrections to the direction of travel should be made and no tight corners should be moved along.

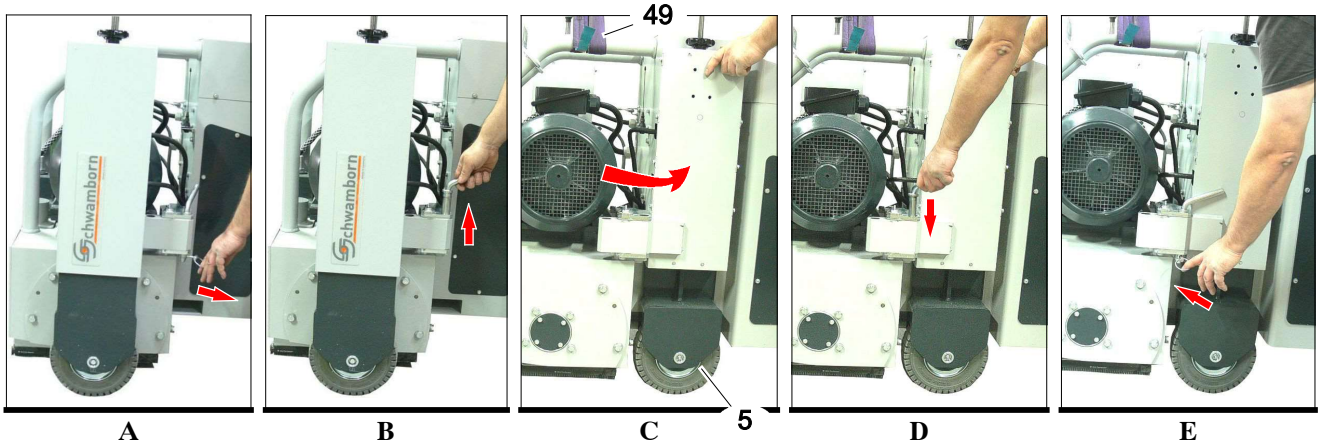
5.6.1 Swivelling the support

⚠ **The operating personnel responsible for the machine must ensure that no-one can enter the machine's danger zone during operation.**

For swivelling, it must be possible to move the support wheel freely above the ground.

1. Place the machine on a flat, horizontal and firm surface.
2. **either**
   Raise the supports and lower the milling rotor:
   — Press the two *Support* pushbuttons (34/39) in the ↓ direction.
   ✓ Both support wheels [5] are moved up and the milling rotor is lowered on to the floor.

   or
   Raise the machine using a lifting device (e.g. crane):
   — Raise the machine at the rear right using a sling [49] until the right support can be swivelled.



3. Unlock the locking pin and pull it out of the pin (**A**).
4. Pull out the pin (**B**).
5. Swivel the support unit forwards (**C**).
6. Insert the pin up to the stop (**D**)
7. Insert the locking pin in the pin and lock it (**E**).

✓ The support unit is in the front position.

8. **either**
If the milling rotor was lowered:
— Press the two *Support* pushbuttons (34/39) in the ↑ direction.
✓ Both support wheels [5] are moved down and the milling rotor is lifted off the floor.

or:
If the machine was raised using a lifting device:
— Lower the machine.

✓ The machine is standing on the support wheels [5] and on the drive wheel.

i Swivelling back is carried out in the reverse order.

5.6.2 Creating a milling path near the wall

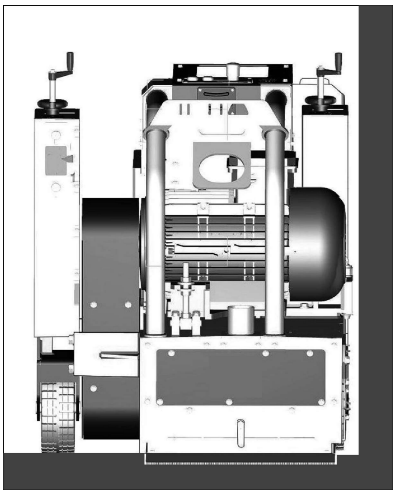
▪▪▶ Observe the safety instructions in Chapter 5.6, page 19!

i This method can be used to create a milling path near the right wall.

⚠ **Risk of damage.**
When driving around corners, the support must be swivelled back.
When driving around corners with the support swivelled forwards, the support wheel will rub against the floor and thus be subject to increased wear.

1. Swivel the support forwards (→ Chapter 5.6.1, page 21).

✓ The right support wheel is in front of the milling rotor and runs on the unmilled floor surface (→ Figure).



2. Create a milling path flush with the wall.
3. Swivel the support backwards (→ Chapter 5.6.1, page 21).

5.6.3 Creating a wide milling path

▪▪▶ Observe the notes in Chapter 5.6, page 19.

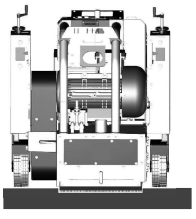
i This method can be used to create a milling path of any width (if necessary also at the right wall) using parallel milling paths.

1. Create the first milling path (→ Chapter 5.6, page 19).
2. Note down the displayed tilt angle [45] (normally 0°).
3. Press the two *Support* pushbuttons (34/39) in the ↑ direction.

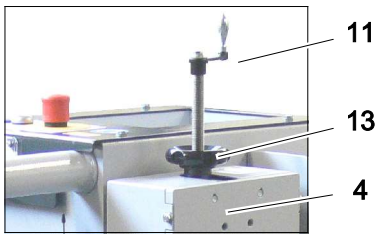
i Both support wheels [5] are moved down to the stop and the milling rotor is lifted off the floor.

4. Switch off the milling drive (→ Chapter 5.4, page 17).

i For the first milled path, the right support wheel runs on unmilled floor. When the second and every other adjacent milled path is milled, the right support wheel must run on the already milled floor.



1. Milling path



5. Move with the right support wheel into the previously created milling path.

i The individual milling paths must overlap by approx. 2 cm in order that no ribs are created.

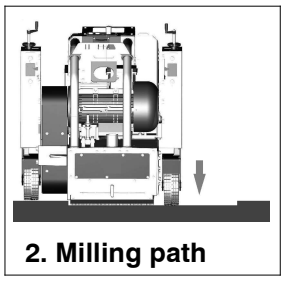
6. Release the clamping wheel [13] of the right support.
7. Turn the crank [11] for the right support [4] by the same value as in Chapter 5.5, pos. 9., page 19 anticlockwise ↺ .
8. Tighten the clamping wheel [13] of the right support.

✓ The crank stops are clamped.

9. Switch on the milling drive if necessary (→ Chapter 5.4, page 17).
10. Tap the two *Support* pushbuttons (34/39) evenly in the ↓ direction.

✓ The support wheels [5] are moved up slowly to the stops. The rotating milling rotor is lowered to the set milling depth in the floor.

✓ The machine is now at the same angle as when milling the first path.


2. Milling path

11. Create the next milling path (→ Figure).
12. Tap the two *Support* pushbuttons (34/39) evenly in the ↑ direction.

✓ Both support wheels [5] are moved down to the stop and the milling rotor is lifted off the floor.

13. Move with the right support wheel into the previously created milling path.
14. If necessary, create further milling paths without adjusting the support wheels after pos. 10..
15. Press the two *Support* pushbuttons (34/39) in the ↑ direction

✓ Both support wheels [5] are moved down to the stop and the milling rotor is lifted off the floor.

16. Stop operation (→ Chapter 5.7, page 24).

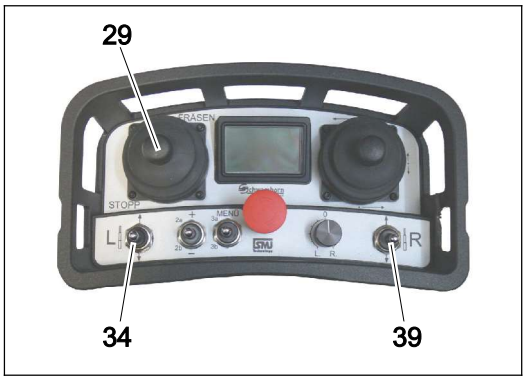
5.7 Stopping operation

Before leaving the machine, the relevant operator must stop operation.

Risk of injury from high voltage.
There is still residual voltage even after the machine has been switched off.
To disconnect the machine from the power supply, disconnect the CEE connector [22] **from the mains.**

1. Move the *Milling* joystick [29] in the ↓direction.

The machine stops.
Both support wheels [5] are moved down to the stop. The milling rotor stops and is lifted off the floor.



Risk of injury from milling rotor still rotating after the machine is switched off.
The milling rotor may continue to turn for several seconds after switching it off (follow-up movement).

The operation is stopped.

2. Report any faults and notes to the relevant supervisor.

6 Maintenance

Observe the safety instructions in Chapter 2.2.

Risk of injury
from high voltage.
All repairs to the electrical system may only be carried out by skilled electricians.
Prior to doing any work on the electrical system and prior to starting, maintenance, cleaning, repairs or similar work, do the following:
— **Disconnect the power plug** [22] .

The machine must be serviced according to the instructions in this operating manual. Otherwise the warranty will become void.

Inspections and maintenance must be conducted in accordance with the schedule in the operating manual.

Cleaning, maintenance and repair work may only be carried out by trained specialist personnel (! Chapter 12, page 32).

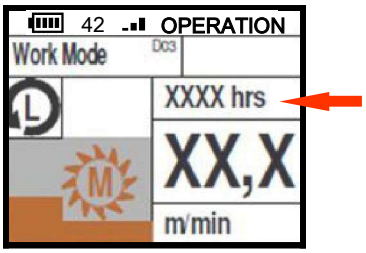
The maintenance personnel responsible for the machine must ensure that no-one can enter its danger zone during maintenance work.

Only genuine spare parts supplied by the manufacturer may be used.

Operation must be stopped before starting maintenance work (→ Chapter 5.7, page 24)**!**

6.1 Maintenance schedule (short overview)

An operating hours counter is integrated into the machine's control system (→ Chapter 3.1, page 10).



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Maintenance, modifications to the machine and any repairs must be documented in device book B
(→ Chapter 13 - page 33).

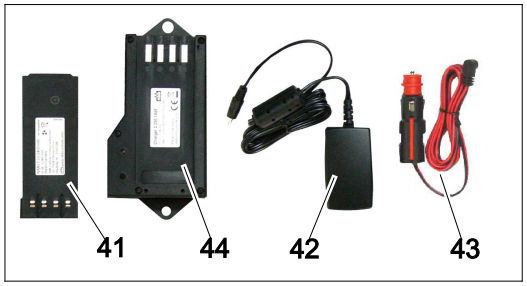
Interval	Action	Chapter	Page
Daily before operation / as required	Check / charge the remote control battery	6.3	25
20 operating hours	Check / tighten the milling rotor nuts	6.5.4	28
50 operating hours	Check / tension the V-belt	6.6	28
As required	Clean the machine	6.4	26
	Clean the milling rotor	6.4	26
	Replace brush strips of the milling rotor	6.5.4	28
	Replace multi-disc rods, milling discs and spacers	6.5.3	27

6.2 Charging the machine battery

The machine battery is automatically charged when a mains connection is established.
(→ Chapter 5.2, pos. 2. - page 14).

6.3 Charging the remote control battery

The remote control is equipped with a powerful battery.



1. Remove the battery [41] from the remote control [28] and insert it into the charger [44].
2. **either**:
   - **a.** Connect the cable of the power supply unit [42] to the charger.
   - **b.** Plug the power supply unit into a socket.
3. **or**:
   - **a.** Connect the vehicle charging cable[43] to the charger.
   - **b.** Plug the vehicle charging cable into the corresponding 12V/24V socket of the vehicle.

✓ The battery is charged.

4. Remove the battery from the charging cradle and insert it into the remote control.

ℹ The charging cradle can be fastened at a suitable point. The battery should be charged over night to be ready for use the following day.

6.4 Cleaning the machine

Risk of damage.
The machine must not be cleaned if it is in operation.

High-pressure cleaners and steam cleaners may be used in the lower pressure range (max. 100 bar).

All electrical parts need to be protected from spraying water.

Health risk.
Only use approved cleaning agents to clean the machine.

Hazards for the environment.
Do not allow oil to enter the sewage system.

The manufacturer recommends adding water or a dust extraction unit with appropriate filtration during operation (→ Chapter 5.6 - page 19).

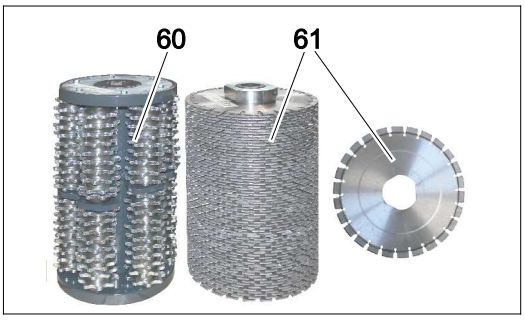
1. Remove tools and materials not required for operation from the machine.
2. Clean the machine and tools thoroughly with a cloth or suitable agents (cold cleaner, motor cleaner, plastic care product, silicone spray).
3. If necessary, restart the machine (→ Chapter 5.2 - page 13).

6.5 Maintenance of the milling rotor / cutting rotor

The required special tool with V-belt and belt pulleys is included in the scope of delivery [59].

59

Milling rotors [60], multi-disc rods, cutting rotors [61], spacers and spacer rings are available in different configurations.
The manufacturer of the machine will be glad to give appropriate recommendations for operation with different tools.



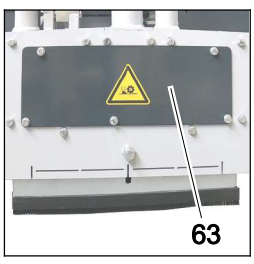
This chapter describes how to handle the milling rotor. The cutting rotor is handled in the same way.

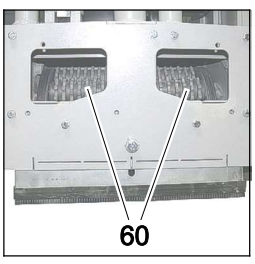
6.5.1 Preparatory work

1. Set down the machine on a flat surface.
2. Press the two *Support* pushbuttons (34/39) in the ↑direction.

Both support wheels [5] are moved down to the stop and the milling rotor is lifted off the floor.

1. Swivel the support forwards (→ Chapter 5.6.1, page 21).
2. **Stop operation** (→ Chapter 5.7, page 24).
3. View the condition of the installed milling rotor:
   a. Remove the front panel [63].





   The condition of the milling rotor [60] can be assessed.

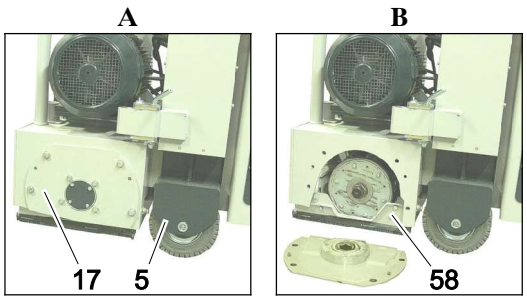
   b. **Refit the front panel .**

6.5.2 Removing the milling rotor

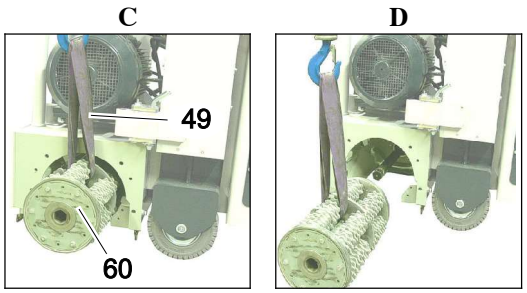
Hot and heavy machine parts may cause injury.
Use protective gloves and safety footwear.
Do not reach under the milling rotor.

Risk of injury from sharp edges.
Sharp burrs can form on the milling discs during the milling process.

1. Unscrew the 4 screws of the bearing plate [17] and pull the bearing plate off the rotor shaft (→ Figure **A**).
2. Unscrew the 4 screws of the intermediate plate [58] and remove the intermediate plate (→ Figure **B**).



3. Pull the milling rotor [60] approx. 20 cm off the rotor shaft and secure it with a sling [49] in the centre against falling (→ Figure **C**).
4. Pull the milling rotor off the rotor shaft and set it down (→ Figure **D**).



6.5.3 Maintenance / replacement of the milling rotor

1. Unscrew one of the two cover and spacer rings [64]from the multi-disc rods.
2. Pull the milling discs [65] and spacers [66] off the multi-disc rods, clean them and check their function and condition.

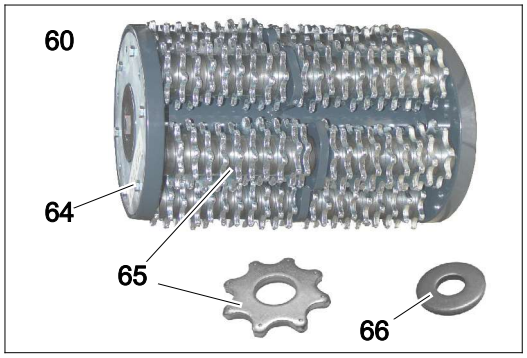
Due to wear, the milling discs and the spacers are reduced in diameter and get narrower.

If the free lateral total gap at all multi-disc rods is greater than 8 mm per multi-disc rod, additional spacers need to be fitted at all multi-disc rods.

Danger of imbalance.
Each multi-disc rod has to be equipped with the same number of milling discs and spacers.

3. Clean the milling rotor, multi-disc rods, milling discs and spacers and check them for wear.

All milling discs should move easily.



The movement of the milling discs wears down the multi-disc rods and wear tracks develop. The manufacturer recommends also renewing all the multi-disc rods whenever the milling discs are replaced. This avoids excessive wear of the bearing bushes in the milling rotor.

If the diameter of a multi-disc rod falls below 19 mm, then all multi-disc rods need to be replaced.

Risk of damage due to worn multi-disc rods.
Multi-disc rods that are excessively worn can break and cause significant damage.

4. If necessary, fit new multi-disc rods between the two cover and spacer rings.
5. Screw cover ring on to the multi-disc rods.

Due to the knocking movements, the bearing bushes of the milling rotor can be knocked out.

If a bearing bush of the milling rotor has been knocked to an oval shape (max. 21 mm)**, both need to be replaced.**

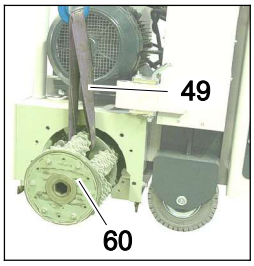
If a bearing bush of the milling rotor has been ground through, the milling rotor needs to be replaced.

6. Mount a cover ring and spacer ring with multi-disc rods.
7. Push all intact milling discs and the spacers on to the multi-disc rods.
8. Fit the second cover ring and spacer ring.

6.5.4 Installing the milling rotor

1. Secure the new, other or repaired milling rotor [60] with a sling [49] in the centre against falling and push it approx. 20 cm on to the rotor shaft (→ Figure **E**).
2. Remove the sling and push the milling rotor on to the rotor shaft up to the stop.
3. Mount the intermediate plate [58] (→ Figure **F**).
4. Push the bearing plate [17] on to the rotor shaft and screw it tight (→ Figure **G**).

E



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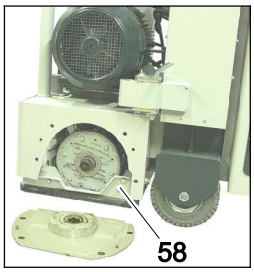

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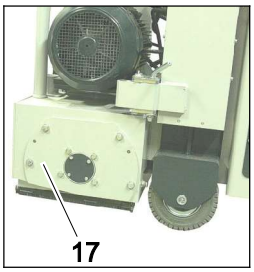


6.6 Checking / replacing / tensioning the milling drive belt

1. Press the two *Support* pushbuttons (34/39) in the ↑direction.

Both support wheels are moved down and the milling rotor is lifted off the floor.

2. Place a firm base [52] (e.g. wooden board) with a width of at least 60 cm and a thickness of approx. 5 cm under the milling rotor.
3. Press the two *Support* pushbuttons in the ↓direction.

Both support wheels [5] are moved up and the milling rotor is lowered on to the base.

Attention:
Move the supports up until the left support wheel just lifts off the ground.

4. Secure the left support against falling over (e.g. using a crane with tensioned sling).

Risk of damage)
The hydraulic connections must not be separated or damaged.

5. Release the left support from the 2 supporting elements [53] (4 screws) and set it aside.

If necessary, the right side of the support can be screwed on to the left supporting element [53L].

6. Remove the V-belt cover [6].

Risk of damage.
For operation with a milling rotor and with a cutting rotor, various belt pulleys and V-belts must be installed.

The milling rotor rotates at approx. 1000 rpm.
The cutting rotor rotates at approx. 3000 rpm.
A complete conversion kit is optionally available.

7. Check the belt tension (5 V-belts).

It must be possible to push each belt [55] **through by hand approx. 5 mm.**

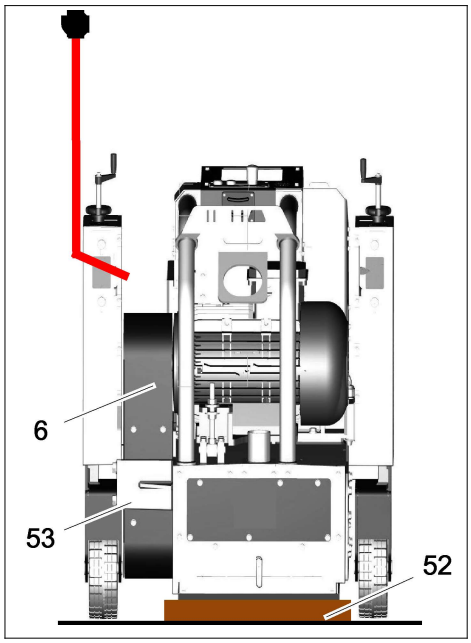
A vibrometer can be used to check the belt tension.
The natural frequency of the belts:
- approx. 82 Hz with new belts
- approx. 72 Hz with used belts

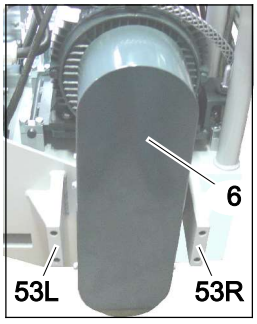
(→ Operating manual of the vibrometer).

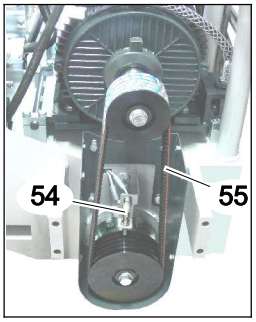
8. If the belt tension is to be changed:
   a. Loosen the lock nuts [56].
   b. If necessary, turn the tensioning nut down completely and insert new V-belts.
   c. Adjust the belt tension using the tensioning nut [57].
   d. Hold the tensioning nut in place and tighten the lock nut.
9. Refit the belt cover.
10. Release the left support on to the 2 supporting elements [53] (4 screws).
11. Press the two *Support* pushbuttons in the ↑direction

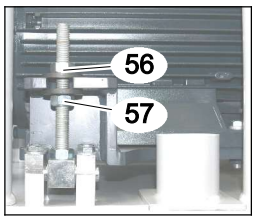
Both support wheels are moved down and the milling rotor is lifted off the base.

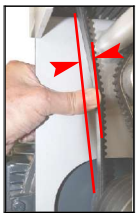
12. Remove the base.











7 Troubleshooting (short overview)

Observe the safety instructions in Chapter 2.2.

Only persons who have been instructed accordingly may work on and with the machine. (→ Chapter 12, page 32).

If the machine or parts of the machine are not working properly, operation must be stopped in all cases and the supervisor responsible for the machine must be informed.

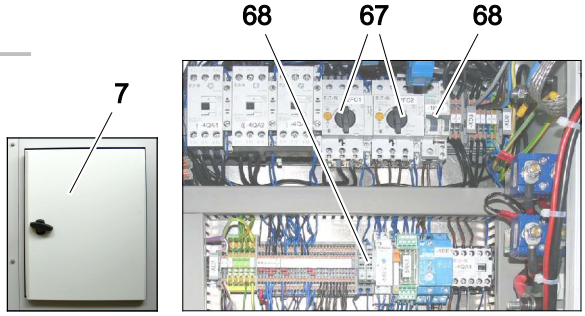
Troubleshooting, fault rectification and repairs may only be carried out by authorised, appropriately trained specialist personnel.
If necessary, the manufacturer must be commissioned (→ page 2)**!**
Any loose fastenings may be repaired by the owner or operator.

Contact/commission manufacturer = ●

Fault	Possible cause	Measure	→ Chapter	
The machine cannot be started.	Wrong tool or/and wrong belt pulley mounted. The machine is equipped with an electronic tool recognition (milling rotor/cutter rotor).	Mount the corresponding tool or the corresponding belt pulleys.	6.6	
Milling rotor failure The milling rotor does not rotate and cannot be switched on again.	Milling rotor is blocked	Remove blockage		
	Hydraulic oil shortage Major oil loss, oil traces	**1.** Stop operation **2.** Search for and rectify leaks **3.** Remove oil traces with oil binder **4.** Top up hydraulic oil **5.** Work at reduced milling speed and/or lower milling depth	5.7 . 5.5	
	The milling cutter operating time of 500 hours has been exceeded	Inspection		●
Milling drive failure Noise (whistling)	Belt tension too low	Tension milling drive belt	6.6	
Hydraulic system failure	Hydraulic line leaking	Replace or tighten		
	Not enough hydraulic oil	Top up hydraulic oil		

7.1 Electrical fuses

The motor circuit breakers [67] and fuses [68] are in the switch box [7].



8 Technical data

Oscillating floor miller		BEF 400RC
Length		1590 mm
Height		1150 mm
Width	Support swivelled out Support swivelled in	950 mm 830 mm
Milling width / cutting width		400 mm
Rated motor output		15 kW
Speed	Milling rotor Cutting rotor	max. 900 rpm max. 3000 rpm
Milling depth Cutting depth		max. 10 mm max. 30 mm
Milling advance (depends on milling depth)		approx. 1 ... 2 m/Min
Cutting advance (depends on cutting depth)		approx. 0.25 ... 0.6 m/Min
Sound power level (ISO EN 3744)		98 dB(A)
Hydraulic oil supply		approx. 1 litre
Dust extraction		∅ 70 mm
Load per surface		approx. 500 kg/m^2
Total weight	Milling Cutting	approx. 740 kg approx. 760 kg

9 EC declaration of conformity

The corresponding EU declaration of conformity is supplied separately with the machine.

10 Disposal

The owner must take measures to limit waste, particularly by the use of clean technologies and recyclable and re-usable products.

The owner must ensure the responsible disposal and utilisation of the waste.

Waste products must be correctly sorted and separated for disposal.

Observe all national and regional waste disposal regulations.

In particular, the following “waste disposal” EC directives must be observed.

11 Appendix

The EU declaration of conformity and the spare parts plans follow, each as a separate document.
The circuit diagrams are located in the switch box.

⚠ **To ensure the safety and the functional availability of the machine, always only use genuine spare parts.**

12 Device book A: Instructions

Machine no. _____

Page no. _____

Instructions according to the operating manual must be documented in device book A. The pages of the device book must be numbered consecutively.

The device book can be stored separately from the operating manual.

Recommendation:
Only write on copies of this page.

Before starting work, all persons working on or with the machine must be instructed by an authorised person (e.g. safety officer or supervisor) in the safety instructions and in proper operation and maintenance, and their knowledge must be checked.

I have read the operating manual in full.
Anything unclear has been clarified with my supervisor.
I hereby confirm that the instructions were given and my knowledge was checked.

Instructed and checked person	Signature	Date	Instructed by

13 Device book B: Work carried out and modifications made

Machine no. _____

Page no. _____

Maintenance, modifications to the machine and any repairs must be documented in device book B. The pages of the device book must be numbered consecutively.

The device book can be stored separately from the operating manual.

🕘 = operating hours counter (→ Chapter 3.1, page 10).

Recommendation:
Only write on copies of this page.

Date	🕘	Work carried out and modifications made	Name	Signature