

## Fab Lab Limerick Workshop Safety

Fab Lab Limerick workshop space functions as a collectively supported resource; ask yourself how you can improve it as well as use it.

Use of the workshop is a privilege, which can be revoked for any violation of any of these rules.

Only individuals who have been instructed how to use the workshop are allowed to operate machines.

Report all accidents, injuries, machine damage and missing supplies right away.

Any student wilfully or carelessly violating any of the shop policies will be subject to appropriate disciplinary actions and may be banned from using the area.

If you have any questions, please email: [fablab@saul.ie](mailto:fablab@saul.ie)

### **In case of emergency**

Stay calm.

Shut off power.

Get help.

Address injuries.

Report to staff: Gerard Walsh

UL Reception/security: 061 213333

First Aid: Gerard Walsh  
087-9005044

Emergency phone numbers: Emergency Ambulance Service 999  
St. John's Hospital 061-415822  
Regional Hospital Dooradoyle 061-301111

First Aid boxes are located beside 3D Printers in the main Fab Lab space and beside workbench B in workshop space.

Fire Extinguishers are located in each communal room on the ground floor. They are sign posted 'Fire Point'.

## Introduction

### Workshop Space

Fab Lab Limerick is open 9.00 to 17.00 Tuesday to Saturday. There is a late opening of 19.30 to 21.30 on Thursday evenings. All users of the space are requested to be familiar with the emergency procedures such as evacuation and who to contact should they need assistance re an emergency matter. Fab Lab Limerick has a number of pieces of computer controlled and manually controlled machines in the workshop space. These include a CNC Router, a plunge saw and sanders. Use of the powered equipment in this space is restricted to those who have undergone the safety and operation training course. All computer-controlled equipment must be booked through the online scheduling system at <http://fablablimerick.schedulista.com/>

### Use of Workshop space, outside normal hours.

Fab Lab Limerick may be used exceptionally out-of-hours only by specific arrangement with Fab Lab Coordinator. Out-of-hours use, must be booked by all users using the online scheduling system. It is not permitted to work alone late at night in Fab Lab where equipment or operations may be hazardous. In all cases, you must comply with the Buildings & Estates Department 'Out of Hours Access to Buildings Policy' and carry out a risk assessment of the proposed work, ensure the necessary protective and preventive measures are in place, comply with other required procedures. Where possible you should work in pairs (buddy system) and be familiar with the relevant fire and other out-of-hours emergency procedures.

## Safety first.

### General

Never work in a crowded environment.

If something seems unsafe inform a member of staff. Rely on your judgment and knowledge of safety to guide you.

If you are unsure about the safe operation or process of a job then please request assistance from a member of staff.

Keep all aisles and doors clear and free of obstructions.

Do not disturb or interfere with others when they are working. No messing, running, yelling, or sudden movements toward persons at machines. Talking or sudden movements can distract long enough for an accident to occur.

## **\_Personal**

Do not use any equipment while tired or under the influence of drugs, alcohol or any medication causing drowsiness.

Wear safety goggles and use earplugs /ear defenders when using powered tools and machines. Users are responsible for wearing dust masks and hearing protection when needed. Safety glasses, masks and earplugs are provided, however it is recommended for users to have their own.

Do not wear gloves while operating machinery.

Make sure nothing can get caught in the machines:

- Tie back long hair.
- Take off jewellery.
- Wear clothes that are suitable for work.
- Do not wear loose clothing and remove scarves, ties etc.
- No drawstrings on clothing permitted in the workshop.
- Wear sturdy fully closed shoes with a flat, slip-resistant sole.

No headphones allowed. Listen to the machinery - motor slowing, bearings squealing, bit/blade smoking... These can be indications of potentially dangerous situations.

## Machinery

Never use equipment, power tools and machines without a thorough understanding of its operation and your safety.

Do not stretch a machine beyond the limits of its design. If in doubt consult a staff member.

Do not alter the machine or tamper with its set-up.

Inform a staff member if you think the machine needs maintenance.

Make sure the dust extractor is running before switching on a machine that uses it and ensure that the air valve is open.

Be certain all safety guards are in place before operating any machine or equipment. Never tie down, block out or otherwise make inoperative any type of safety device, attachment, method or guard.

Be aware of finger and hand location at all times. Avoid awkward operations, and use push sticks when necessary. Never lose focus while at a machine. Keep your mind on what you are doing.

Turn off machine before leaving - when possible, wait for machine to stop. Beware of machines that are still running while unattended.

Clamp or secure equipment or material to prevent it from shifting or rotating when drilling, grinding, cutting etc.

Report damage of machinery - failure to do so could result in injury.

Do not attempt to remove any power lockouts.

## Manual Handling

### Good Lifting Technique Guidelines

- a) Plan the lift: determine the weight of the load and the path to be taken, remove obstructions, check the underfoot conditions.
- b) Place the feet: have the feet apart to make a firm and stable base.
- c) Adopt a good posture: bend the knees, keep the back straight (tucking the chin into the chest while gripping helps), keep the shoulders level and facing the same direction as the hips (never twist at the hips while lifting or carrying a load).
- d) Get a firm grip: get a firm grip on the load, try to keep the arm within the boundary formed by the legs.
- e) Do not jerk the load: lift smoothly
- f) Move the feet: do not twist the trunk
- g) Keep the load close: keep the load close to the torso
- h) Put down then adjust: slide the load into position after putting it down.

## Be considerate.

Keep your work area clean and orderly. Do not allow parts, scraps or other material to accumulate on the workshop floor or in work areas. Put all waste material in the relevant Bin.

Clean up all spills immediately.

Clean up after yourself when you're finished: Vacuum clean the machine and the floor around it. **Put all tools back to where you got them.**

Return safety equipment.

No power tools are to leave the workshop without staff approval.

Work in progress should be stored in a tidy manner and labelled; it should not be left on workbenches. Unidentified work will be discarded.

## Use common sense.

Do not use flammable substances, solvents or spray paints in the workshop space.

Do not eat or drink in the workshop space.

## Plan ahead.

Plan your work ahead. Have your shop drawings ready before you begin work in the workshop space.

Allow for enough time and do not put yourself under undue pressure.

Double-check measurements and settings on machines. Make trial cuts.

## Plunge saw

1. The Plunge saw is set up for timber, plywood and MDF only. Make sure the material you intend to cut does not contain any nails, screws or similar.
2. Make sure the dust extractor is connected and running.
3. The plunge saw is for straight cuts only (ripping or cross cutting) – no curved cuts.
4. Use guide rails provided.
5. Make sure the material is firm and won't move during operations. Clamp it to the table if necessary.
6. Make all adjustments before switching on the machine.
7. Check the blade angle. Set the height of the saw blade so that it protrudes below the work piece by 5 mm maximum.
8. Know the position of your hands. Keep both hands on the handles provided at all times.
9. Do not cut pieces smaller than 250mm x 250mm.
10. When cutting push forward at an even speed and avoid putting pressure on the saw blade.
11. Switch off the machine. Wait for the blade to stop before moving the saw.
12. Power down the machine, turn off extractor, and clean all materials and dust off workbench.



**MANUFACTURER:**

schopach Fabrikation vor  
Holzwerkzeuge und Maschinen GmbH  
Günzburger Straße 69  
D-89335 Ichenhausen

**DEAR CUSTOMER,**

we wish you a pleasant and successful working experience with your new schopach machine.

**NOTE:**

According to the applicable product liability law the manufacturer of this device is not liable for damages which arise on or in connection with this device in case of:

- improper handling,
- non-compliance with the instructions for use,
- repairs by third party, non-authorized skilled workers,
- installation and replacement of non-original spare parts,
- improper use,
- failures of the electrical system due to the non-compliance with the electrical specifications and the VDE 0100, DIN 57118 / 708-0113 regulations

**RECOMMENDATIONS:**

Read the entire text of the operating instructions prior to the assembly and operation of the device.

These operating instructions are intended to make it easier for you to get familiar with your device and utilize its intended possibilities of use.

The operating instructions contain important notes on how to work safely, properly and economically with your machine and how to avoid dangers, save repair costs, reduce downtime, and increase the reliability and working life of the machine.

In addition to the safety regulations contained herein, you must in any case comply with the applicable regulations of your country with respect to the operation of the machine.

Put the operating instructions in a clear plastic folder to protect them from dirt and humidity, and store them near the machine. The instructions must be read and carefully observed by each operator prior to starting the work. Only persons who have been trained in the use of the machine and have been informed on the related dangers and risks are allowed to use the machine. The required minimum age must be met.

In addition to the safety notes contained in the present operating instructions and the special regulations of your country, the generally recognized technical rules for the operation of wood working machines must be observed.



Read the operating instructions before beginning work with this power tool.



Wear ear and eye protection.



Wear breathing protection.

**LEGENDE VON FIG. 1**

- 1 Handstop and grip
- 2 Front handle
- 3 Plunge-cut trigger
- 4 On-off switch
- 5 Base plate
- 6 Adjustment screw for depth of cut
- 7 Scale for depth of cut
- 8 Micro adjustment screw
- 9 Micro square
- 10 90-degree adjustment screw
- 11 Saw blade
- 12 Suction nozzle
- 13 Motor
- 14 Shaft locking mechanism
- 15 Locking lever for saw blade replacement
- 16 Adjustment screw for guide rail

cs 55	
Scope of delivery	plunge cut saw Hexagon head wrench 5mm Operating instructions
<b>Technical Data</b>	
Dimensions L x W x H mm	340 x 260 x 235
Saw blade (mm) / number of teeth	150 / 24Z
Thickness of saw blade	2,0 mm
Idle speed (RPM)	5500 1/min
Micro square	0°-45°
Depth of cut 90° mm	55
Depth of cut 45° mm	41
Weight kg	4,8
<b>Drive</b>	
Motor W/Hz	230-240/50
Input W	1200
Protection class	II
<b>Operating noise level and vibrations</b>	
Sound pressure level	$L_{pA}$ : 95 dB(A), $K_{pA}$ : 3 dB(A)
Sound power level	$L_{WA}$ : 105 dB(A), $K_{WA}$ : 5 dB(A)
Typical weighted vibrations	$a_{hv}$ : 0,72 m/s <sup>2</sup> , $K_v$ : 1,0 m/s <sup>2</sup>
<b>Measured values corresponding to EN 60745-205 and EN 60745-211</b>	
<b>Subject to technical modification!</b>	

**Warning:** Noise can have adverse health effects. Should the noise level increase above 85 dB(A), you must wear ear protection. Should the electrical supply not be optimal, then the current can drop for a short time when the machine is turned on. This can influence other equipment (for example, the blinking of a lamp). Should the electrical capacity have a  $\gamma_{max} < 0,27$ , such disturbances are not to be expected. (Should you have difficulties, please consult your local dealer.)

**General notes**

- After unpacking, check all parts for any transport damage. Inform the supplier immediately of any faults.

- Later complaints cannot be considered.
- Make sure the delivery is complete.
- Before pulling into operation, familiarize yourself with the machine or carefully reading these instructions.
- Use only original Scheppach accessories, wearing or replacement parts. You can find replacement parts at your Scheppach dealer.
- When ordering, include our item number and the type and year of construction of the machine.

In these operating instructions we have marked the places that have to do with your safety with this sign:

### III General safety instructions for power tools

- **WARNING** Read all warnings and instructions. Failure to apply all warnings and instructions can lead to electrical shock, fire and/or serious injury.
- Keep all warnings and instructions handy for future consultation.
- The term "power tool" used in the warnings refers to power tools that are connected to a source of electrical energy (with an electrical cable).

#### 1) Workplace safety

- Keep your working area clean and well lit. Cluttered or dimly lit workpieces can lead to accidents.
- Do not operate power tools in areas where explosions could take place, or in which flammable liquids, gases or dust are present. Power tools can create sparks, which can cause dust or fumes to ignite.
- Keep children and bystanders away from the power tool when it is being used. Distractions could cause you to lose control over the equipment.

#### 2) Electrical safety

- The terminal plug of the tool must fit into the outlet. The plug may not be modified in any way. Do not use an adaptor plug, together with grounded power tools. The original plugs and the appropriate outlets reduce the risk of an electrical shock.
- Avoid contact with grounded surfaces, such as pipes, radiators, stoves and refrigerators. There is an increased risk of electrical shock, if your body is grounded.
- Keep power tools away from rain or wet conditions. Penetration of water into the power tool increases the risk of electrical shock.
- Do not use the cable for any purpose other than that for which it was made. Do not use it to carry the tool, hang it up, or to pull the plug out of the outlet. Keep the cable away from heat, oil, sharp corners or parts of the equipment that move. Damaged or entangled cords increase the risk of electrical shock.
- When operating the power tool outdoors, only use extensions or cords that are suitable for outdoor use. The use of an appropriate extension cord reduces the risk of an electrical shock.
- If the power tool must be used in a damp environment, use a residual current protective device. The use of such a device reduces the risk of electrical shock.

#### 3) Personal safety

- Be attentive, watch what you are doing and use the power tool sensibly. Do not use power tools when you are tired or under the influence of drugs, alcohol or medicines. One moment of inattention while using a power tool can result in serious injury.
- Wear personal protective equipment and always wear protective glasses. Wearing personal protective equipment, such as a dust mask, slip-free safety shoes, protective headwear or ear protection, depending on the type and use of a power tool reduces the risk of injury.
- Avoid unintentional start-ups. Make sure that the power tool is shut off before it is connected to the power supply, or is carried. If you have your finger on the switch of the tool while carrying it, or have the tool turned on, or connected to a power supply, this behavior can lead to accidents.
- Remove the adjustment aides or the spanners before turning on the power tool. A tool or wrench that is located in a rotating part of the machine, can lead to injuries.
- Avoid abnormal posture. Make sure that the operator is standing firmly and can maintain balance. This allows the operator to maintain control over the power tool in unexpected situations.
- Wear appropriate clothing. Do not wear loose clothing or jewellery. Keep hair, clothing and gloves away from the moving parts. Loose clothing, jewellery or long hair can get caught in the moving parts.
- If dust vacuums or catching systems can be installed on the tool, make sure if all these are correctly connected and assembled. The use of a dust collection unit can reduce hazards caused by dust.

#### 4) Use and treatment of the power tool

- Do not overtax the tool. Use the appropriate tool for the work that is to be done. With the correct power tool, you can work better and more safely.
- Do not use a power tool where the switch is defective. A power tool that cannot be turned on and off is dangerous and must be repaired.
- Disconnect the plug from the wall outlet before you make adjustments to the tool, change parts or put the tool away. This precaution prevents inadvertent start-ups of the tool.
- Store power tools that are not in use out of reach of children. Do not let anyone use the tool who does not have experience with it, or who has not read these instructions. Power tools can be dangerous when they are used by inexperienced people.
- Take good care of your power tools. Make sure that movable parts function properly and do not jam, see that parts which influence the use of the machine are not broken or damaged. Repair damaged parts before operating the tool. Many accidents are caused by poorly maintained power tools.
- Keep cutting edges sharp and clean. Properly maintained cutting tools with sharp cutting edges, are less often and are easier to control.
- Use power tool accessories, and equipment according to these instructions. Taking into account the working conditions and the work being performed.

The use of power tools other than those intended for the tool itself can lead to dangerous situations.

#### **6) Service**

a) Only let qualified service personnel repair your tool and always use original replacement parts. This guarantees that the power tool remains safe to use.

### **iv Safety instructions for all saws**

a) **DANGER!** Do not put your hands in the sawing area or on the saw blade. Keep your second hand on the extra handle of the motor housing. If both hands are holding the saw, neither can be injured by the saw blade.

b) Do not put your hands under the work piece. The protective cap cannot protect your hands from the blade when they are under the work piece.

c) Adjust the cutting depth to the thickness of the work piece. Less than one complete sawing tooth should be visible under the work piece.

d) Never hold the work piece that is to be sawn in your hand or over your leg. Make sure that the work piece has a stable balance. It is important that the work piece is held securely. In order to minimize the danger of contact of a body part with the saw, loss of control over the saw, or jamming of the blade.

e) Hold the equipment on the insulated hand as, when you undertake work in which the tool being used could come into contact with hidden electrical wires, or its own cable. Contact with a live power source can electrify the metal parts of the tool and lead to an electrical shock.

f) When making a long cut, always use a stop check or a straightedge. This improves the accuracy of the cut and reduces the chance that the saw blade jams.

g) Always use the correct size of saw blades and make sure they have the right fitting bore (e.g. Star shaped or round). Saw blades that do not fit the assembly of the saw do not run correctly and cause loss of control.

h) Never use damaged or incorrect saw blade shims or screws.

The saw blade shims and screws are designed especially for your saw, for optimal performance and operating safety.

### **iv Additional safety instructions for all saws**

Causes and prevention of kickbacks:

- A kickback is a sudden reaction due to a caught, jammed or incorrectly adjusted saw blade, which leads to the saw rising up in an uncontrolled manner and moving out of the work piece towards the operator.

- If a saw blade catches or jams in the sawing edge that closes behind it, it is blocked and motor's drive pushes the saw back in the direction of the operator.

- If the saw blade twists in the saw groove or is incorrectly positioned, the teeth at the rear side of the saw blade edge catch in the surface of the work piece. The

saw then moves out of the saw groove and springs back in the direction of the operator.

- A kickback results from an incorrect or faulty use of the saw. It can be prevented, as will be described in the following, by appropriate cautionary measures.

a) Hold onto the saw with both hands and position your arms so that they can absorb any energy from a kickback. Always keep to the side of the saw blade, and never bring it into line with your body. In the case of a kickback, the circular saw can jump backwards, but with adequate caution the operator can deal with the energy of the kickback.

b) If the saw blade jams or you want to interrupt your work, then turn the saw off and keep the work piece still until the saw blade comes to a full stop. Never try to remove the saw from the work piece or pull it out when the saw blade is moving since then a kickback can occur. Find out the cause of the jam and remove it.

c) If you want to start up a saw that is in the work piece, centre the saw blade in the sawed groove and check that the saw blade teeth are not caught in the work piece. If the saw blade is jammed, it can jump out of the work piece or cause a kickback when it is started up.

d) Support larger work pieces in order to reduce the risk of a kickback due to a saw blade jam. The weight of larger work pieces can cause them to bend. Large pieces must be supported on both sides, both near the sawing slot as well as on the edges.

e) Do not use dull or damaged saw blades. Saw blades with dull or misaligned teeth increase the friction in the sawing slot, cause saw blade jams and kickbacks.

f) Before you start sawing, tighten the adjustments for the cut depth and angles. If you change settings while sawing, the saw blade can jam and a kickback is the result.

g) Be particularly careful when making "inserted cuts" in walls that already exist or other areas where you cannot see what is behind the surface. When the saw blade is inserted into the wall it can be blocked by hidden objects and cause a kickback.

### **iv Safety instructions for inserted circular saw use**

a) Each time before you use the saw, make sure that the protective covering closes. Do not use the saw if the protective covering cannot move freely and does not close immediately. Never slip or tie the protective covering in an opened position. If the saw should accidentally fall to the ground, the protective covering can get bent. Make sure that the protective covering can move freely and does not touch the saw blade or other parts in all cutting positions.

b) Check the condition and function of the spring for the protective covering. Have the saw repaired before use if the protective covering and spring do not work perfectly. Damaged parts, sticky residues or piles of saw dust can interfere with the working of the lower protective cover.

c) When making an "inserted cut" that does not describe a right angle, make sure that the saw is guarded against

slipping to the side. Slippage can lead to a saw blade jam and a kickback.

dh Do not put the saw on the workbench or the floor without making sure that the protective cover is over the saw blade. An unprotected, running saw blade can move the saw against the cutting direction and saw what is in the way. Check the delay time of the saw.

## m Additional safety instructions for all sawing with a wedge

ay Use the right wedge for the saw blade that is in use. The wedge must be thicker than the thickness of the steel blade but thinner than the width of the teeth.

ah Adjust the wedge as described in the operating instructions. Incorrect thickness, position or direction can be the reason that the wedge does not effectively prevent a kickback.

ai Always use a wedge, except when making an inserted cut. Reassemble the wedge after an inserted cut. The wedge is in the way when making an inserted cut and can cause a kickback.

aj In order for the wedge to be effective, it must be in the sawing gap. For short cuts, a wedge does not work to prevent kickbacks.

ak Never run the saw with a bent wedge. Even the smallest defect can slow down the closing of the protective cover.

## INSTRUCTIONS FOR ALL SAWS

- Do not use a sanding belt.
- Make sure that the wedge is adjusted so that the distance to the sprocket ring of the saw blade is not more than 5 mm and that the sprocket ring does not stick out more than 5 mm above the lower edge of the wedge.
- Make sure that the dust catching mechanism is correctly installed, as is described in this manual.
- Wear breathing protection.
- Only those saw blades recommended in the manual should be used.
- Always wear ear protection.
- Replace the saw blades as described in this manual.
- The maximum cut depth is 65 mm.

If the electrical cable of this tool is damaged, it must be replaced by the manufacturer or the customer service department or a similarly qualified specialist in order to avoid dangers.

## FURTHER SPECIAL SAFETY INSTRUCTIONS FOR CIRCULAR SAWS

- ah Only use the recommended saw blades which correspond to EN 847-1.
- ai Do not use sanding belts.
- aj Only use the manufacturer's original saw blades with

the number Ø 160 mm, 6000/min, 160 x 20 x 2 G.

Do not use any saw blades which do not correspond to the characteristics described in these operating instructions. Saw blades may not be brought to a stop by pressure on the machine from the side.

Make sure that the saw blade is tightly assembled and turns in the correct direction.

## m Special Safety Instructions

Safety instructions for circular saws

- Hold the equipment on the insulated hand as when you undertake work in which the tool being used could come into contact with hidden electrical wires or its own cable. Contact with a live power source can electrify the metal parts of the tool and lead to an electrical shock.

## m Proper use

**CE tested machines meet all valid EC machine guidelines as well as all relevant guidelines for each machine.**

- The machine must only be used in technically perfect condition in accordance with its design and use and the instructions set out in the operating manual, and only by safety-conscious persons who are fully aware of the risks involved in operating the machine. Any functional disorders, especially those affecting the safety of the machine, should therefore be rectified immediately.
- Any other use exceeds authorization. The manufacturer is not responsible for any damages resulting from unauthorized use; risk is the sole responsibility of the operator.
- The safety, work and maintenance instructions of the manufacturer as well as the technical data given in the calibrations and dimensions must be adhered to.
- Relevant accident prevention regulations and other, generally recognized safety-technical rules must also be adhered to.
- The machine may only be used, maintained and operated by persons familiar with it and instructed in its operation and procedures. Arbitrary alterations to the machine release the manufacturer from all responsibility for any resulting damages.
- The machine may only be used with original accessories and tools made by the manufacturer.
- The machine may not be operated with sanding belts.

## m Remaining hazards

**The machine has been built using modern technology in accordance with recognized safety rules. Some remaining hazards, however, may still exist.**

- The use of incorrect or damaged mains cables can lead to injuries caused by electricity.
- Even when all safety measures are taken, some remaining hazards which are not yet preventable may still be present.
- Remaining hazards can be minimized by following the instructions in „Safety Precautions“, „Proper Use“ and in the entire operating manual.
- Do not force the machine unnecessarily; excessive

cutting pressure may lead to rapid deflection of the blade and a decrease in performance in terms of finish and cutting precision.

- When cutting aluminium and plastics always use the appropriate clamps; all workpieces must be clamped down firmly.
- Avoid accidental starts: do not press the start button while inserting the plug into the socket.
- Always use the tools recommended in this manual to obtain the best results from your plunge cut saw.
- Always keep hands away from the work area when the machine is running; before performing tasks of any kind release the main switch button located on the handgrip, thus disconnecting the machine.

## m Suitable use

### To cut:

- Hard and soft, domestic and exotic wood both longitudinally and transversally and with appropriate adjustments (specific blade and clamps).

### Unsuitable use

#### Do not cut:

- Ferrous materials, steel and cast iron or any other material not mentioned above and in particular: castings.

## Start-up

Observe the safety rules in the operating instructions before operating the machine.

### REMOVAL OF PACKAGING

Remove the box used to protect the machine during transportation and keep it intact for future transportation and storage.

### ELECTRICAL CONNECTIONS

Check that the electrical system to which the machine is connected is earthed in compliance with current safety regulations and that the current socket is in perfect condition.

The electrical system must be fitted with a magnetothermal protective device to safeguard all conductors from short circuits and overload.

The selection of this device should be in line with the following electrical nominal data of the machine stated on the motor.

**NOTE:** Your plunge cut saw's electrical system is equipped with an undervoltage relay which automatically opens the circuit when the voltage falls below a minimum pre-established limit and which prevents the self-reset of machine functions when voltage returns to normal levels. If the machine stops involuntarily, do not be alarmed. Make sure that there has not been a voltage failure in the electrical system.

## ADJUSTING

Caution: Prior to carrying out any of the following adjustment steps, switch the machine off and unplug the mains

plug.

### Cutting depth adjustment, Fig. 2

The cutting depth can be adjusted from 0 to 55 mm. Unfasten the cutting depth adjustment screw (6) and set the required depth using the scale (7) and retighten the screw.

The dimensions on the rail shows the cutting depth without rail.

### Mitre settings, Fig. 3

The mitre square can be set from 0° to 45°.

Unfasten the mitre adjustment screws (8) on both sides set the desired mitre square on the scale (9) and retighten both screws.

### Saw blade replacement, Fig. 4, 5, 6

- 1 Release the lock lever (16) and press the plunge trigger (3). bring the saw blade into the blade-change position (Adjustment screw for depth of cut shall be adjusted to 25mm) and insert the hex wrench into the blade locking screw (17).
  - 2 Press on the shaft lock (13) and rotate the saw blade (10) until the lock clicks into place.
  - 3 Hold down the locking shaft (13) and open the blade locking screw (14) counter clockwise, while keeping the blade in the blade-changing position.
  - 4 Remove the outer flange (16) and the saw blade (10).
- (Caution: risk of injuries, wear protective gloves)**
- 5 Insert the new blade and flange.
  - 6 Firmly and tighten the saw blade locking screw while keeping the shaft locking mechanism pressed again.

### Adjusting the splitting wedge, Fig. 7

Adjust the distance between saw blade and splitting wedge after a saw blade replacement, or whenever necessary.

Put the saw in the same position as you do when replacing a saw blade.

Unfasten the adjustment screw (18) using an Allen key and set the splitting wedge 2-3 mm higher than the saw blade, then retighten the adjustment screw.

## Operations

After having performed all the above procedures and operations, you may begin cutting.

**ATTENTION:** Always keep hands away from the cutting area and do not try to approach it when the machine is running.

### Switching the product on/off, Fig. 1

To switch the plunge-cut saw on, press the on/off switch (4). To switch off, release the on/off switch (4).

### Operating and holding the plunge-cut saw, Fig. 8

- 1 Secure the work piece so that it cannot get displaced or moved while sawing.
- 2 Only move the saw forwards.
- 3 Grip the saw tightly with both hands ensuring that one hand is placed on the main handle and the other on the front handle.

- 4 When using a guide rail, it must be fastened with screw clamps.
- 5 Make sure the power cable is not placed in the sawing direction.

#### Sawing

- 1 Place the front part of the machine onto the work piece.
- 2 Switch the machine on using the on/off switch (4).
- 3 Press the plunge-cut trigger (3).
- 4 Push the saw downwards to reach the sawing depth.
- 5 Push the saw forward evenly.
- 6 After finishing the sawing cut, switch the machine off and move the saw blade upwards.

#### Plunge-cuts, Fig. 9

- 1 Place the saw onto the work piece.
- 2 Place the cutting indicator with the rear arrow (A) on the marked plunge-cut position.
- 3 Switch the machine on and push the saw downwards until you reach the set cutting depth.
- 4 Move the saw forwards until the cutting indication (C) has reached the marked point.
- 5 After completion of the plunge cut, move the saw blade upwards and switch the saw off.

#### Cutting with rails (optional)

- 1 Place the machine in the guide rails, can be readjusted using the hex driver (included in the delivery, when there is the risk of the adjusting screws releasing by themselves).
- 2 Turn on the machine by pressing the on/off switch (4).
- 3 Press the dip trigger (3).
- 4 Press the saw downwards to reach the sawing depth. During first use the rubber lip is sawn off and brass splitter protect on is guaranteed up to the saw blade.
- 5 Push the saw uniformly forwards.
- 6 Turn off the machine and lift the saw blade to the top when the saw cutting is complete.

#### Sawing with dust suction

Connect the suction hose to the exhaust nozzle - Ø 38 mm (12).

### m Electrical connection

The installed electric motor is completely wired ready for operation.

The customer's connection to the power supply system, and any extension cables that may be used, must conform with local regulations.

#### Important remarks:

The motor is automatically switched off in the event of an overload. The motor can be switched on again after a cooling down period that can vary.

#### Defective electrical connection cables

Electrical connection cables often suffer insulation damage.

#### Possible causes are:

- Pinch points when connection cables are run through

window or door gaps.

- Kinks resulting from incorrect attachment or tying of the connection cable.
- Cuts resulting from running over the connection cable.
- Insulation damage resulting from forcefully pulling out of the wall socket.
- Cracks through aging of insulation.

Such defective electrical connection cables must not be used as the insulation damage makes them **extremely hazardous**.

Check electrical connection cables regularly for damage. Make sure the cable is disconnected from the mains when checking.

Electrical connection cables must comply with the regulations applicable in your country.

#### Single-phase motor

- The mains voltage must coincide with the voltage specified on the motor's rating plate.
- Extension cables up to a length of 25 m must have a cross-section of 1.5 mm<sup>2</sup>, and beyond 25 m at least 2.5 mm<sup>2</sup>.
- The connection to the mains must be protected with a 16 A slow-acting fuse.

Only a qualified electrician is permitted to connect the machine and complete repairs on its electrical equipment.

In the event of enquiries please specify the following data:

- Make/manufacturer
  - Type of current of the motor
  - Data recorded on the machine's rating plate
  - Data recorded on the switch's rating plate
- If a motor has to be returned, it must always be dispatched with the complete driving unit and switch.

## CNC Router

1. Be aware of the emergency stop locations.
2. Eye and Ear protection must be worn at all times.
3. A dusk mask should be worn if necessary.
4. Beware this is an **automatic machine**. Be aware of the rotating bit and automatic moving parts.
5. Dress appropriately, tie back long hair. Do not wear loose clothing or jewellery.
6. Make sure the dust extractor is running and the duct gate is open.
7. Beware of small parts that can come loose during cutting and may be thrown. Make sure stock is thoroughly secured to bed.
8. Shut down power to spindle before changing cutting bits. Use appropriate bit for material.
9. Do not attempt to cut any material other than wood, plastic, foam or soft metals.
10. Do not attempt to move/clean any stock when the machine is running.
11. When job is finished and machine has come to a stop, sweep and vacuum machine of all debris.

## ***You Need to Know This: Warnings***

### **ALERT! HOW TO STOP!!**

During tool operation the SPACEBAR on your computer keyboard becomes a Panic/Stop/Halt button. Hitting it will immediately stop the tool's movement.

Your ShopBot is also supplied with a **STOP Button** that you can place in a convenient location on your tool. Hitting this button will stop the tool's movement. On a PRSAlpha ShopBot or Buddy the STOP Button will also cut power to the spindle/router.

### **TOOLS REQUIRE ATTENTION! Follow Safe Procedures!**

Your ShopBot, in conjunction with a router or other power tool, is a flexible, tool-movement system that can reduce your woodworking risks by providing a method of cutting wood or other material without having to interact with the cutting device or the material during the cutting process. However, as with all power tools, care and attention are required to use a ShopBot safely. ShopBot Tools, Inc. assumes you will use this product safely and follow accepted safety precautions for woodworking and machining.

### **READ THESE SAFETY INSTRUCTIONS**

1. **READ.** Read this manual well to acquaint yourself with how to handle the tool safely and effectively before use. Read related manuals for the router and/or spindle that will be mounted on your ShopBot.
2. **PRACTICE.** Practice operating your ShopBot tool with your computer and the ShopBot Control Software **BEFORE** activating the router or spindle.
3. **PROTECT.** Turn OFF your router or other power tool before loading or positioning a workpiece or adjusting the position of the tool. Do not change router bits or other cutters without first unplugging the power tool or having a positive system to make sure the power tool is not accidentally activated. It is your responsibility to use it safely.
4. **HOLD-DOWN.** Never attempt to cut wood or other material without first ensuring that the work is firmly secured to the work surface. Power cutting tools always carry the risk that work material or broken cutters will be sent flying towards the operator or others in the area. A tool like ShopBot allows you to work with the workpiece secured and thus greatly reduces this risk. It also allows the operator to be away from the cutting and protected. However, YOU must take the steps to secure the workpiece and protect the operator. Note that not only must the full starting piece be secured, but you need to attend to the attachment and security of any pieces that will become cutouts or cutoffs during the cutting or machining process. Stand clear of the tool when it is in operation and protected from debris, parts, or broken cutters that might fly out during operation. Never attempt to push material by hand through a moving bit or to interact with the tool while it is running.
5. **AWAKE.** Never operate the tool when you are fatigued.
6. **EYES & EARS.** Always protect your eyes and ears when operating your ShopBot.
7. **ATTEND.** NEVER leave the tool unattended while it is running. A cutting error or workpiece slippage that the tool cannot detect might occur. Some person unknowledgeable



about tool operation might approach and start the tool. Or some other unexpected event might occur.

8. **GUARD.** Always position the dust skirt correctly to guard against flying particles.

9. **TO STOP.** During a cutting or motion process, the SPACEBAR on the computer keyboard is a Panic/Stop/Halt button. Hitting the bar will stop the tool's movement. Your ShopBot PRSalpha also has a remote STOP Button that interrupts power to the stepper motors and the spindle or router after it is pushed. You should locate the STOP Button convenient to your tool and workstation. **Note: For PRS systems the power tool is operated independently of your ShopBot, it must be turned off separately.**

10. **POSITION.** The safest location for you during the operation of the tool is within easy reach of the computer keyboard or STOP Button and well away from the path of the tool. Because bits can break and fly loose during cutting -- stand behind a protective screen.

11. **BE SMART.** Most importantly, never place yourself at risk during a cutting or machining process by placing any part of you near the cutting path or by attempting to move or adjust the workpiece or active tool. **SHOPBOT IS A ROBOT, BUT YOU ACTIVATE ITS MOVEMENT AND YOU TURN ON AND OFF ITS POWERED CUTTING-TOOL.**

### **This Manual Assumes ...**

This manual has been written with the assumption that you are familiar with basic aspects of woodworking techniques for safe operation of the power tools and the basic operation of your computer. Information in this manual is subject to change without notice.

We've done our best to make ShopBot a safe and capable tool. We will work to make you happy with your ShopBot, but we need to make each of our responsibilities clear.

ShopBot assumes no responsibility for any damage to property or person resulting from use of power tools with our products. Safe operation of our tools and appropriate workshop precautions will place personnel in locations where they should not be subject to injury.

ShopBot Tools has provided protection and isolation circuitry in the controller/driver board that links your computer to the tool. We assume no responsibility for damage that may occur to your computer as a result of power surges, static discharges, or unexpected electrical events occurring in the system. We further assume no responsibility for damage to your computer that may occur because it is being operated in a workshop environment.

Your ShopBot CNC Router is both a physical tool and computer software. We strongly recommend that you keep separate permanent records of all important computer data, files, and programs. Data may be lost or altered with virtually any software product under certain circumstances. Therefore, ShopBot assumes no responsibility for data lost or otherwise rendered unusable whether as a result of improper use, repairs or modification, defect, or any other cause.

In no event will ShopBot assume responsibility for damages arising out of the use or inability to use this product (including without limitation damages for loss of business profits, business interruption, loss of business information and the like) even if ShopBot has been informed of the possibility of such damages.

Use of this product for any period of time constitutes your assumed acceptance of this agreement and subjects you to its contents.

## Portable sanders

1. The sander is for fine facing of wood/ply/MDF only.
2. Eye Protection and dust mask should be worn when required.
3. In case the sanding belt is worn or torn do not use the sander - notify a member of staff.
4. Be aware of rotating machine parts. Loose clothing or long hair may get caught. Dress appropriately, tie back long hair.
5. Extraction or dust collection bags must be used when using sanders and emptied as required.
6. Once finished clean the machine.