



Student Workshop Guide

Modellbauerwerkstatt



TECHNISCHE
UNIVERSITÄT
DARMSTADT

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1 Safety Instructions

Rules and Interdictions

- In principle, the rules of the workshop regulations apply

https://www.architektur.tu-darmstadt.de/media/architektur/fachbereich_architektur/einrichtungen_1/werkstatt_1/Werkstattordnung_09112016.pdf

- In general, no conversions or modifications of the machines may be carried out!
- It should be avoided to work alone in the workshop. If this is necessary, another person must be informed
- No smoking / No open fire
- Working on the machines in the event of a failed extraction system is strictly forbidden (extreme dust formation)
 - Fire and explosion hazard -



- If the extraction system fails, please open all doors and report directly to the workshop or by e-mail pit@architektur.tu-darmstadt.de
- Do not work under the influence of alcohol, drugs or medication
- No music may be heard or telephoned while working on machines
- Clothing must be tight or the sleeves must be rolled up firmly - There is a risk of injury if parts of the clothing get into the machine -



- Scarves or ribbons of pullovers are to be taken off or tied up high – There is a risk of injury if parts of the clothing get into the machine -



- Do not wear gloves when working on the machines
– There is a risk of injury should the gloves get into the machine -



- It is to wear sturdy footwear



- Do not wear jewellery on hands or wrist - There is a risk of injury -



- Wear long hair closed



- Keep a safe distance from persons working on machines
- Do not address anyone who is currently working on a machine (Search for eye contact first) - Risk of injury due to shock or jerky movements
- Spilled liquids must be wiped up immediately

- Do not leave sharp or pointed objects lying around (for example cutter tips or metal shavings)



- The work area must be cleared up after use



- Defective or damaged machines must be reported directly to the workshop or by e-mail pit@architektur.tu-darmstadt.de

- Only use workpieces of suitable size and material



- The use of sanded-through abrasive belts is prohibited - Fire hazard



- All materials soaked in oil, especially linseed oil varnish, must not be thrown into the garbage can

These must first dry thoroughly in air, otherwise there is a risk of spontaneous combustion

- Tighten all clamping screws and set screws by hand only (after tighten comes break off)

- Please switch of all machines and the light when leaving the workshop
- Pay attention to safety instructions
- The most current (possibly revised) version of this handout is always valid

You can find it as PDF under

https://www.architektur.tu-darmstadt.de/fachbereich_architektur/einrichtungen/werkstatt_1/index.de.jsp

2 Machines and equipment with the instructions for use in summarised form

2.1 Disc Grinding Machine

- Before using the machine, check all protective device and close if necessary
- Let the machine run for approx. 5 sec before use so that the extraction system can start
- Pay attention to the direction of rotation of the grinding wheel



(When the disc rotates to the right, hold workpieces only on the right sight of the disc
When the disc rotates to the left, hold workpieces only on the left sight of the disc)

- Material that must **NOT** be ground
 Plaster Metal Glass
- Switch off the machine after use
- If the extraction system fails (increased dust formation) stop all machine work immediately (EXPLOSION HAZARD)

2.2 Belt Grinding Machine

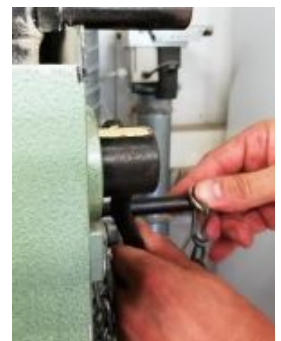
- Before using the machine, check all protective device and close if necessary
- Let the machine run for approx. 5 sec before use so that the extraction system can start
- Switch on main switch (black button)



- Turn the rotary switch on the right side counterclockwise to 1
- Material that must **NOT** be ground
Plaster Metal Glass
- Switch off the machine after use
- If the extraction system fails (increased dust formation) stop all machine work immediately (EXPLOSION HAZARD)



- Changing the grinding belt:
 - To clamp or unclamp the abrasive belt, pull down the lever on the right side and secure with the metal pin



- Open the protective device above and on the left side



- Insert the new abrasive belt so that the arrows on the rear side point upwards

- Align abrasive belt centrally and close protective devices

- Then relax the metal lever on the right side



- Push the abrasive belt by hand to determine whether it runs in the middle

- If the abrasive belt does not run in the middle, please inform the workshop

2.3 *Oscillating Spindle Grinding Machine*

- Material that must **NOT** be ground
Plaster Metal Glass
- Take care not to apply too much pressure against the spindle
- Let the machine run for approx. 5 sec before use so that the extraction system can start
- Switch off the machine after use



2.4 *Bridge Scroll Saw*

- Before using the machine, check that the saw blade is properly clamped
- To switch on the machine, press the foot pedal and then turn the red switch to the right



- The saw blades, which you can buy in the workshop or 24/7 in „Ludwigs-Lädchen“ (S.24), are only suitable for wood and wood-based materials

Other materials such as metal or plexiglass can also be cut with appropriate saw blades



- Defective or blunt saw blades must be discarded
- Put your thumbs on when pushing the workpieces



- Only change the saw blade when the machine is completely switched off

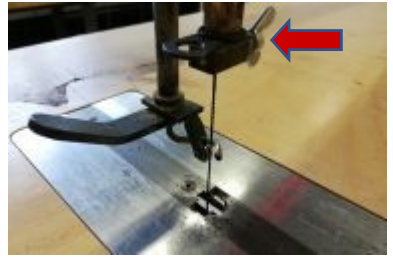
- Changing the saw blade:

- Loosen the upper wing nut

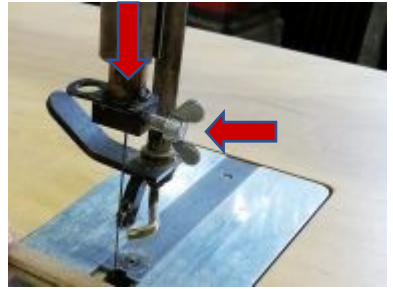
- Now turn the device downwards to loosen the lower wing nut and remove the blade

- First clamp the new saw blade at the bottom and turn the device upwards again

- The saw blade is now slightly to the left, but it should not be positioned forward or backward, otherwise it cannot be firmly clamped



- Then pull down the upper clamping device over the saw blade to the stop and tighten the wing nut



2.5 Scroll Saw

- The required clamping blocks can be borrowed in the workshop during the opening hours for a deposit of 18 € (They can be used until the end of your studies)
- Before using the machine, check that the saw blade is properly clamped



- The saw blades, which you can buy in the workshop or 24/7 in „Ludwigs-Lädchen“ (S.24), are only suitable for wood and wood-based materials
Other materials such as metal or plexiglass can also be cut with appropriate saw blades
- Defective or blunt saw blades must be discarded
- Put your thumbs on when pushing the workpieces
- Only change the saw blade when the machine is completely switched off

- Clamping the saw blade:

- The saw blade is inserted into the clamping blocks at both ends



- The clamping block is placed in the holder and the saw blade is inserted in the middle and tightened with the wrench



(after tighten comes break off)

- Now align the saw blade so that the teeth point forwards and downwards, then insert into the lower position



- Pull the clamping lever forwards and press the blue extension arm downwards to be able to insert the clamping block at the top



- The clamping block should just glide over the upper posture, if this is not the case, it must be readjusted at the rear adjusting screw



- The clamping lever must be pushed back to tighten the saw blade if the clamping block is seated in the upper holder



(Caution: If the clamping block does not slide straight into the holder at the top, the saw blade is too loose or too tightly clamped and can tear or cause poor cutting results)

2.6 Box Column Drill

- Make sure that the appropriate drill bit is used for the selected material (wood, metal, etc.)
- Clamping the tool tightly
- Always use a support to prevent drilling through the workpiece into the metal table
- Adjust the table to the clamped tool and material (the distance between tool and material should be approx. 2cm)



2.7 Spraying Extraction System

- Switch on the spraying extraction system before spraying
- Leave the spraying extraction system on as long as the workpiece is drying before
- Spray only in the direction of the extraction system



2.8 Bench Vice

- Do not tighten the vice too much (after tightend comes break off)
- Various workpieces can be clamped here for working
- If the material is soft, a layer of wood should be used, as the surfaces of the vice can leave marks



2.9 Workbench

- The workbench serves as a storage and work surface and not as a test piece
- When processing liquids (paints, stains or other chemicals) a underlay must be used
- Clean up the workbench after use



- Do not leave sharp or pointed objects lying around (for example cutter tips or metal shavings)

2.10 Ludwigs-Lädchen

- Only scroll saw blades for wood and wood-based materials are available in Ludwigs-Lädchen
- A package of three saw blades costs 60 cents



- Only use the UPPER coin slots for this purpose



- 50 cent left
- 10 cent right



- Pay attention to the row in which saw blades are available and insert the money accordingly in this row
- Turn the right red knobs

- Withdraw scroll saw blades at lower left



2.11 Flow Heater

- The flow heater should always be set to 35° only - Sustainability
- Pay attention to the temperature before you hold your fingers under it - at 85° there is a risk of scalding
- After using a higher temperature set the flow heater back to 35°



2.12 Paper Roll

- Use as a base when painting, staining or working with other liquids



2.13 Extraction System

- Hands off!
- The extraction system must not be opened or damaged
- Please do not use metal mesh as a shelf and don't sit on it



3 Frequently Asked Questions

- The machine does not start:
 - First you should check whether the emergency stop switch is still pressed, if this is the case, release it again (the little ones turn, the big ones pull)
 - If the emergency stop switch is not pressed, the distance is greater or a narrow green stripe is visible
 - All switches should also be turned off, main switch on the sides (if present)



- Then first switch on the main switch again and then press the ON switch
- If the machine still does not work, contact the workshop or send an e-mail to: pit@architektur.tu-darmstadt.de



- When are the abrasive belts changed?
 - We change the abrasive belts of the disc grinders and belt grinders every few weeks
 - If this is handled improperly (e.g. if plaster has been sanded or the discs are already burned after one day of use) we will not replace the abrasive belts directly as a matter of principle
 - Abrasive belts for the belt grinding machine can also be purchased on the internet (pay attention to abrasive belt dimension: 1500mm x 200mm / grit 100)

- How long is the ID valid?
 - The ID is valid for exactly one year
 - The respective expiry date is printed on the badge
 - A refresher course will be offered from the second training onwards, with a shorter training time

- Do i always have to carry my ID with me?
 - Yes! If you work in the workshop, you must have your identity card with you
 - We check randomly
 - If you don't have your ID card with you, you have to leave the workshop

We will **NOT** ceck the system to see if you have attended the training

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