



Standard Operating Procedure

Struers Accutom-50 Precision Cutter

Compiled By:	Rachel Rossau	Cross Checked By:	Reza Parvizi	Category:	EQUIPMENT
School:	Engineering	Campus:	Waurrn Ponds	Location:	KE2.101
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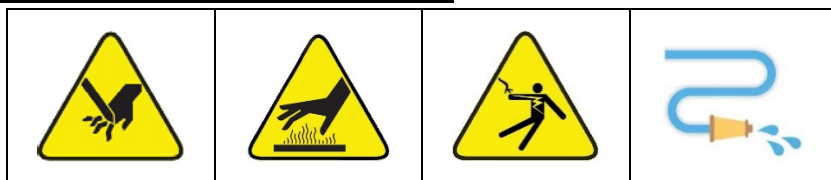
SCOPE & PURPOSE:

The purpose of this SOP is to show the authorised staffs and users how to operate the precision cutter safely.

TRAINING REQUIREMENTS:

User will have completed Level 1 online and Level 2 materials labs inductions, and need to be trained in a level 3 induction by technical staff. Before using this equipment, required safety documentation must be completed and signed off by the technical staff and the user's supervisor.

POTENTIAL HAZARDS/HEALTH EFFECTS:



- Cutting/stabbing from sharp objects (e.g. sharp edges of the specimen or the cutting wheel).
- Contact with objects at high temperatures – incorrect cutting parameters and/or insufficient lubrication can cause heat generation/sparking during cutting of the sample.
- Chemicals contained within the coolant.
- Fumes and dust escaping upon opening the guard and cleaning equipment.
- Electrical due to water/coolant sump near powerpoint.
- Slipping due to slippery work surfaces if water/coolant gets on the floor.

MANDATORY CONTROLS:

- ✓ Lab coat
- ✓ Safety glasses
- ✓ Enclosed footwear
- ✓ Nitrile gloves
- ✓ Training provided
- ✓ Project Safety Assessment
- ✓ Clamps and supports to position workpieces
- ✓ SDS available
- ✓ First Aid available
- ✓ Guard (Lid)

Precaution Requirements:

- Must be operated by technician or under their direct supervision.
- Do not leave cutter running while unattended.
- Under no circumstances is cutting to be performed without water/lubricant.
- If cutting is noisy or sparking, stop the process immediately and seek assistance from the technical staff.

INSTRUCTIONS:

Booking Procedure: must have a booking in the outlook calendar *G SEBE ENG Lab Eqpmnt KE2.101 Precision cut-off machine and invite technician to the booking.

Pre-start check:

- Replace the sump with 3.88L water and 120mL coolant.
- Check that the Cut-Off wheel attached is a correct type for cutting your sample material, and change if required.
 - Aluminium Oxide (30A15) for cutting of hard ferrous metals with HV 250 - 800.
 - Silicon Carbide (10S15) for cutting of soft non-ferrous metals with HV 70 - 400.

Operation:

- Turn power on at the wall and turn instrument power on using the button at the right rear of the instrument.



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- Close the guard to run the coordination system calibration.
- Open the guard and using the yellow buttons (▶/▶) move the coordination system arm away from cut-off wheel clamp.
- Insert and clamp the correct cutting wheel.
- Insert your sample into the correct sample holder.
- Clamp the sample holder onto the coordination system arm by sliding it on and tightening the locking screws.
- Using the yellow buttons set the zero positions for x and y planes.
- Using the yellow buttons set the stop cutting position for the y plane.
- Using the blue buttons to scroll up and down and the pink buttons to select (↵) or escape, from the main menu choose cutting method.
- Select the correct wheel code based on the wheel composition.
- Adjust cutting parameters as required (see appendix).
For multiple cuts;
 - Slices – increase from 1 for multiple cuts – **ensure that the clamp is more than [(slice x thickness) + 10mm] distance away from the wheel.**
 - Thickness
 - Water must be on.
- Close the guard and press the 'Start' button.
- Ensure water and coolant is being pumped onto the sample during cutting – stop cutting immediately if this does not occur and seek assistance.
- Press the 'Stop' button once the cut is complete, unless the cutter automatically stops.

After Use:

- Open the guard, return the holder to neutral position.
- Turn the power off at the rear right of the instrument, and then at the wall.
- Remove the sample holder and unclamp your sample.
- Remove the cutting wheel.
- Remove, clean and dry the 3 grates.
- Clean with a watered damp cloth and wipe dry using paper towel the cutting chamber, sample holder and chamber cover.
- Leave the guard open.
- Ensure the work area is clean, neat and tidy, and all equipment fixtures and tools are dried and located inside the designated container within the Accutom blue cupboard.

GENERAL CARE & MAINTENANCE:

- Clean with a watered damp cloth and dry with paper towel; the cutting chamber, sample holder, 3 grates and chamber cover.
- DO NOT USE Alcohol, acetone or similar solvents.
- Flush the recirculation system with clean water regularly if the cutter is not being used over long periods of time.
- Clean, dry and re-dress cut-off wheels before storing.
- Store cut-off wheels in a dry place with horizontal plane support under light pressure.
- Re-dress cut-off wheels regularly.
- Lubricate sample holders with acid-free oil.

REPAIRS & CERTIFICATION/VALIDATION SCHEDULE:

Reporting faults/concerns of equipment procedure: Technical Staff.

Supplier service and maintenance is conducted annually.

SPILLS/ ACCIDENT REPORTING PROCEDURE:

Spills procedure (Chemical):

- Wear lab coat, safety glasses and gloves to prevent eye and skin contamination and inhalation of vapours.
- Open Spill kit.
- Use absorbent material to contain spill.
- Prevent run-off into drains.
- Contact Technical staff for assistance.



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- Dispose of contaminated materials in accordance with DG Class.

Report spills/incidents to: Technical Staff.

In case of Emergency:

- Stop process immediately.
- Contact Technical Staff.
- Alert others if nearby.
- If a serious injury has occurred call 000.
- Turn power off at wall.

WASTE PROCEDURE:

Empty the contents of the sump into the correct carboy according to SDS for your material and the Coolant.