



SAFE WORK PROCEDURE	Insert Reference Code: e.g.UBC-RMS-OHS-SW P14-001
CHBE 104	Effective date: June 26, 2022 Review date: Supersedes: N/A

Mini Mill Drill CX611 CSA SWP

1. SCOPE

This Safe Work Procedure (SWP) applies to the Mini Mill Drill CX611 CSA (and will be referred to as the "Mill Drill" for the rest of this SWP) in the CHBE bay and must be followed by all users at all times.

2. PURPOSE

To successfully create the component parts necessary for each teams design access to a mill for machining parts and drilling holes. Though there is access to drill presses in the Rusty Hut, that is only during work hours and both teams consist of many members who either have classes during those hours or work as co-op placements and thus cannot use the equipment in the Rusty Hut. The majority of the Teams work sessions are held after the Rusty Hut has closed or during the weekends and this is not possible to change as neither team condones students skipping class/work to work on the projects. Before this purchase, the Teams were forced to send, at most, two individuals to do all of the work requiring a mini-mill to be able to use the equipment in the Rusty Hut. The Teams are not a fan of this procedure as many members miss out on extremely valuable fabrication experiences.

3. BACKGROUND

This piece of equipment was recently purchased new and therefore should have no damage or missing parts. For further instructions (not stated in this SWP) on



how to make adjustments to this unit, to properly replace the blade or to perform regular maintenance procedures, refer to the "Mini Drill Instruction manual"

4. RESPONSIBILITY

- All personnel using this equipment must have the proper training (included in Section 6), and must be designated as authorized users as specified at the end of this SWP
- Follow this SWP at all times when using this equipment
- Ensure that you are wearing all required PPE
- Authorized users should NEVER operate this equipment ALONE
- Do not make any adjustments to the tool that are not part of general operating procedures without reading the Mill Drill Instruction Manual referenced above
- Contact Homer Leung (Fabrication lead of the UBC Steel Bridge Team) at 403.978.7570 or at ubcsteelbridge@gmail.com, or Matthew Drenth (Co-Captain of UBC Concrete Toboggan Team) at 403.929.4236 or at ubctbog@gmail.com if you are unsure of something or if you have any questions or concerns regarding this equipment

5. REFERENCES AND DEFINITIONS

All definitions and additional information can be found in the Mill Drill Instruction Manual referenced in section 3.

6. TRAINING REQUIRED

- UBC RMS Online Courses
 - Bullying & Harassment Prevention
 - WHMIS and other Hazard Identification systems
 - Engineering Design Team Safety Orientation 2017/2018
- Site Specific Orientation
- Equipment Specific Training

7. MATERIALS/EQUIPMENT

- CX611 Mini Mill Drill



- Steel or Aluminum piece for cutting
- Workpiece fixtures
- Cutting bits
- Tool Holder (Chuck)
- Cutting lubrication
- Brush

8. HAZARDS AND CONTROLS

Hazards	Severity Before Control	Controls	Severity After Control
<ul style="list-style-type: none">• Hair or loose clothing entanglement	10	<ul style="list-style-type: none">• Do not wear loose clothing• Tie long hair back and roll back sleeves	2
<ul style="list-style-type: none">• Launching of small cut offs	9	<ul style="list-style-type: none">• Always secure cutting material• Ensure chip guard is secure	4
<ul style="list-style-type: none">• Loud noises	6	<ul style="list-style-type: none">• Wear hearing protection	2
<ul style="list-style-type: none">• Burning skin from touching hot metal pieces	6	<ul style="list-style-type: none">• Wear gloves• Do not immediately touch machined surfaces	3



<ul style="list-style-type: none"> Sharp edges and burrs 	6	<ul style="list-style-type: none"> Keep cutting table free of chips and small pieces at all times Wear gloves 	4
<ul style="list-style-type: none"> Dropping parts or material on feet 	5	<ul style="list-style-type: none"> Wear steel toe boots 	1
<ul style="list-style-type: none"> Serious injury from limbs coming into contact with rotating drill bit 	8	<ul style="list-style-type: none"> Do not touch drill, workpiece or debris until the mill has come to a complete stop Keep limbs away from the mill while it is running Use Guarding 	3
<ul style="list-style-type: none"> Eye injuries 	10	<ul style="list-style-type: none"> Wear eye protection Ensure chip guard is secure 	5

9. PRE PROCEDURE SET-UP

1. Ensure the operator is approved and trained by steel bridge or concrete toboggan on operating the mill
2. Ensure at least one executive who is trained in the operation of the mill is present for anyone using the mill
3. Ensure the operator is wearing all appropriate PPE
4. Ensure the operator is familiar and has read the CX611 manual
5. Check workspace to ensure no slip-hazards present
6. Ensure the machine axis are clear of obstacles that could be in the way.
7. Inspect the power cord and plug for damage.



8. Check that the tool and chuck are appropriate for the material being worked on
9. Ensure the tool being used is not broken or damaged
10. Identify the ON/OFF switch
11. ensure all guarding is in place
12. Faulty or damaged equipment must not be used and reported immediately to your supervisor. Return the device to storage and label 'DO NOT USE'

10. PROCEDURE

1. Secure the work piece to the work table using an appropriate securing device
2. Zero the machine axis to the work piece
3. Close all the guarding
4. Ensure the tool is clear of the workpiece for startup
5. Plug in the milling machine
6. Press start and the spindle should start spinning
7. Select REVERSE or FORWARD for the type of bit being used
8. Set the speed using the + and - buttons to the spindle speed desired
9. Using cutting oil to lubricate the area on the workpiece that will be cut
10. Now begin using the X, Y and/or Z axis controls to begin cutting the workpiece
11. If at any point the machine is chattering, making unusual noises or vibrating excessively IMMEDIATELY STOP and investigate the cause, it could be a number of things from improper cutting parameters, dull or broken tool, machine malfunction, little lubrication.
12. Once the operation is finished turn off the machine using the E-Stop button
13. Move the tool head clear from the workpiece
14. Clear any cutting chips from the workspace and dispose of properly
15. Remove the workpiece from the work table



11. POST PROCEDURE/TAKE DOWN

1. Unplug the mill while the mill is off and clear of the work table.
2. Remove the chuck and tool from the tool head
3. Properly store and secure the cutting tool and chuck in there storage boxes
4. Lock each axis
5. Remove the workpiece securing devices and store properly in there designated storage boxes
6. Clean the entire work space of any tools, workpieces, chips or cutting grease and store or dispose of properly
7. Ensure the power plug is locked out

12. EMERGENCY PROCEDURES

- Immediately use E-stop or turn power off in the case of a snagged or stalled bit, excessive vibration, unusual noise, broken tool, or injury
- In the event of a serious injury, call 911. Refer to the Emergency Contact details posted in workspace
- In the event of a minor injury, contact the captain and safety officer. First aid materials found in the secondary first aid kit can be administered by someone with Occupational First Aid Level 1 or equivalent for minor injuries only.

13. OTHER IMPORTANT INFORMATION

- Contact the APSC Safety & Facilities Officer (Room 235) about any concerns with the condition of the workspace.

14. REVIEW AND RETENTION

This SOP is reviewed annually or whenever deemed necessary by the responsible departmental representative in Risk Management Services.



15. DOCUMENT APPROVAL SIGNATURES

Initial Creation Date: June 26, 2022			
History: N/A			
Revised By:			
	Creator	Management	Unit Head
Name	[name]	[name]	[name]
Date			
Name			
Date			

16. CHBE 104 Mill Drill - AUTHORIZED PERSONNEL LIST

- I acknowledge that I have read and understood this Safe Work Procedure (SWP) and that I will only use this piece of equipment in accordance with the guidelines set out above.

	Name	Signature	Date
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